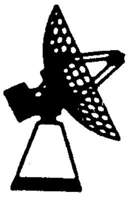
NEC

MODELS JC-1404HM
N/E-1/EE-1/ED-1

COLOR MONITOR MultiSync 3D
SERVICE MANUAL

PART NO. 599910301



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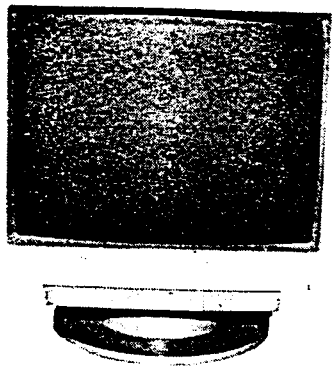
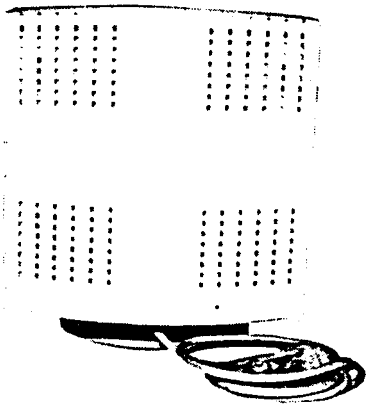




SPECIFICATIONS

A. Electrical Description

Picture Tube	13 Visual inches diagonal 90 degree deflection, 0.28mm dot pitch Dot type black matrix, Non-long persistence phosphor, Dark bulb, Direct etch
Input Signal	Video: TTL Level Positive : ANALOG 0.7 Vp-p/75Ω Positive Sync.: Separate sync. TTL Level Horizontal sync. Positive/Negative Vertical sync. Positive/Negative : Composite sync. TTL Level Positive/Negative : Composite sync. on Green Video sync. 0.3Vp-p Negative (Video 0.7Vp-p Positive)
Display Colors	TTL Input: 8/16/64 colors Analog Input: Unlimited colors

Synchronization	Horizontal: 15.5 kHz to 38 kHz (Automatically) Vertical: 50 Hz to 90 Hz (Automatically)
Resolution	Horizontal: 1024 dots Vertical: 768 lines (interlaced)
Video Band Width	45 MHz
Active Display Area	Horizontal: 240mm Vertical: 180mm (Active display area is changed by signal timing.)
Misconvergence	Less than 0.6mm
Power Supply	AC 220V, 240V 50/60Hz
Power Consumption	82W
Environmental Considerations	Operating Temperature 0° to +40°C Humidity 30% to 80% Storage Temperature −20°C to +60°C Humidity 10% to 90%

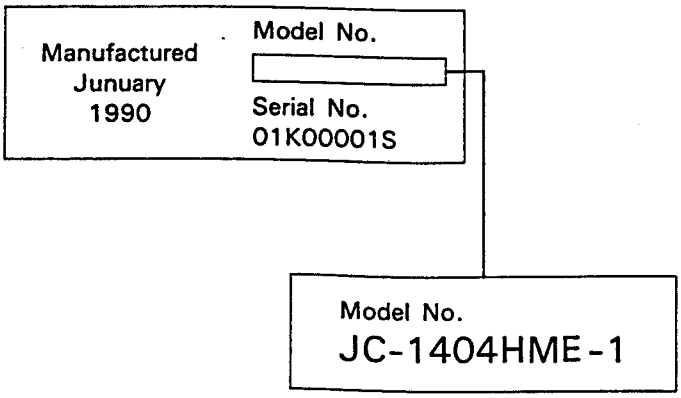
NOTE: The above specifications are subject to change without notice for further improvement.

NEC Corporation
TOKYO, JAPAN

This service manual is for the DELTA version of the NEC original JC-1404HME/EE/ED switch regulator unit, with model JC-1404HMN included.

Check the model name on the serial number label on the bottom panel to distinguish between NEC and DELTA switch regulator units.

LABEL SERIAL NUMBER



Manufactured
Junuary
1990

Model No.

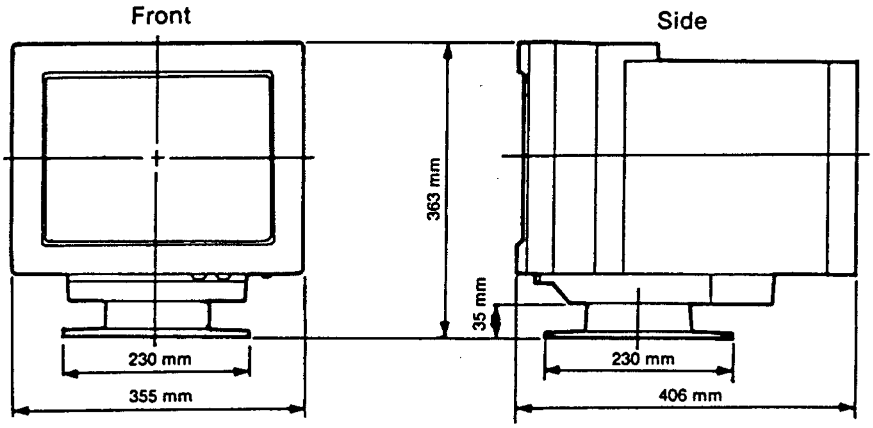
Serial No.
01K00001S

Model No.
JC-1404HME-1

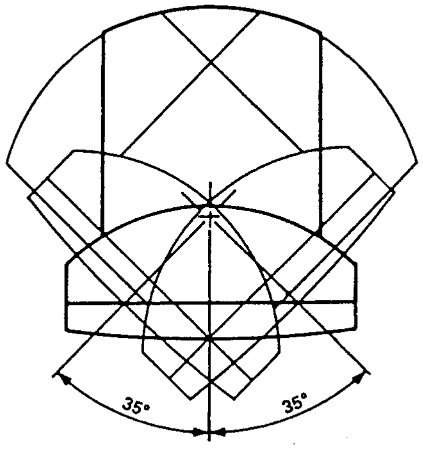
NOTE: Model names ending in "-1" are DELTA models. Model names ending in anything but "-1" are NEC models. For these, use the original service manual for models JC-1404HME/EE/R/ED, PART No. 599910298.

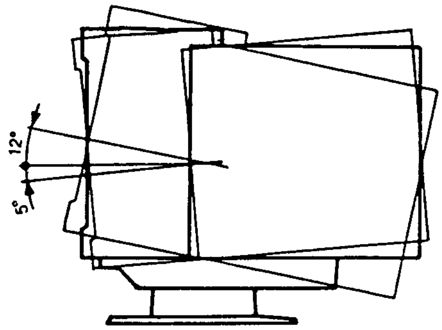
B. Mechanical Description (See below diagrams)

1. Cabinet: Molded plastic cabinet with detachable tilt swivel base.
2. Dimensions: 355(W) × 363(H) × 406(D) mm


Front
Side
363 mm
35 mm
230 mm
355 mm
230 mm
406 mm

3. Tilt Swivel Range

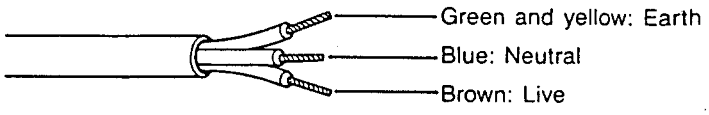




4. Weight: 16 kg
5. Controls:

POWER SWITCH
BRIGHTNESS CONTROL
CONTRAST CONTROL
COLOR SWITCH
MODE SWITCH
H. SIZE CONTROL
H. POSITION CONTROL
V. SIZE CONTROL
V. POSITION CONTROL
MEMORY RECALL BUTTON

6. Input Signal Terminal: 15 PIN MINI D-SUB CONNECTOR (MALE) (SEE PAGE 6 FOR PIN ASSIGNMENTS)
7. Power cord
   In case of JC-1404HMEE-1, the end of power cord is as follows.


Green and yellow: Earth
Blue: Neutral
Brown: Live

GENERAL

The MultiSync 3D Color Monitor, an Intelligent Monitor from NEC, is a microprocessor based, digitally controlled multiple frequency Color Monitor. The MultiSync 3D Color Monitor automatically adjusts to graphics adapters scanning frequencies between 15.5 kHz and 38 kHz (Horizontal), and between 50 Hz and 90 Hz (Vertical).

As you can see, "design" was the top priority with the MultiSync 3D Color Monitor. Besides the dramatic cabinet design, the MultiSync 3D Color Monitor was designed with microprocessor based intelligence, allowing it to operate at each mode with the precision of a fixed frequency monitor.

The MultiSync 3D Color Monitor gives IBM PC, PC/XT, PC/AT, Personal System/2 (PS/2), Apple Macintosh II and compatible users crisp text and vivid color graphics displays when using the following graphics adapters (the MDA, CGA, EGA, PGC, MCGA, VGA and 8514/A) and Apple Macintosh II Video Card.

The MultiSync 3D Color Monitor can also be used with other "non-standard" graphics adapters to provide users with an extremely wide range of color monitor compatibility.

FEATURES

- —The MultiSync 3D Color Monitor is microprocessor controlled with a resident memory base of pre-programmed screen and input configurations and also digital controls.
- —The MultiSync 3D Color Monitor automatically scans all horizontal frequencies between 15.5 kHz and 38 kHz, and all vertical frequencies between 50 Hz and 90 Hz.
- —The MultiSync 3D Color Monitor is compatible with the IBM PC, PC/XT, PC/AT, PS/2, the Apple Macintosh II and compatibles.
- —The MultiSync 3D Color Monitor is compatible with the IBM Monochrome Display Adapter, the IBM Color Graphics Adapters, the IBM Enhanced Graphics Adapters, the IBM Professional Graphics Controller, the IBM MultiColor Graphics Array, the IBM Video Graphics Array, the IBM 8514/A, the Apple Macintosh II Video Card and other compatible graphics adapters.

— The MultiSync 3D Color Monitor's wide compatibility makes it possible to upgrade adapters or software without purchasing a new monitor.
— The MultiSync 3D Color Monitor has a maximum horizontal resolution of 1024 dots and a maximum vertical resolution of 768 lines for superior clarity of display.
— The MultiSync 3D Color Monitor offers both TTL and ANALOG signal inputs, and in the ANALOG mode can display an unlimited palette of colors depending on the graphics adapter and software being used. The MultiSync 3D Color Monitor automatically adjusts to either a TTL signal input or an ANALOG signal input.
— The MultiSync 3D Color Monitor has a 14″ diagonally measured, non-glare CRT that yields a 13″ viewing area.
— A captive signal cable is included with a 15 Pin mini D-sub connector that is configured for IBM's MCGA, VGA and 8514/A graphics adapters.
— Signal cable adapters for graphics adapters with 9 Pin D-sub connector and Macintosh Ⅱ Video Card are included.

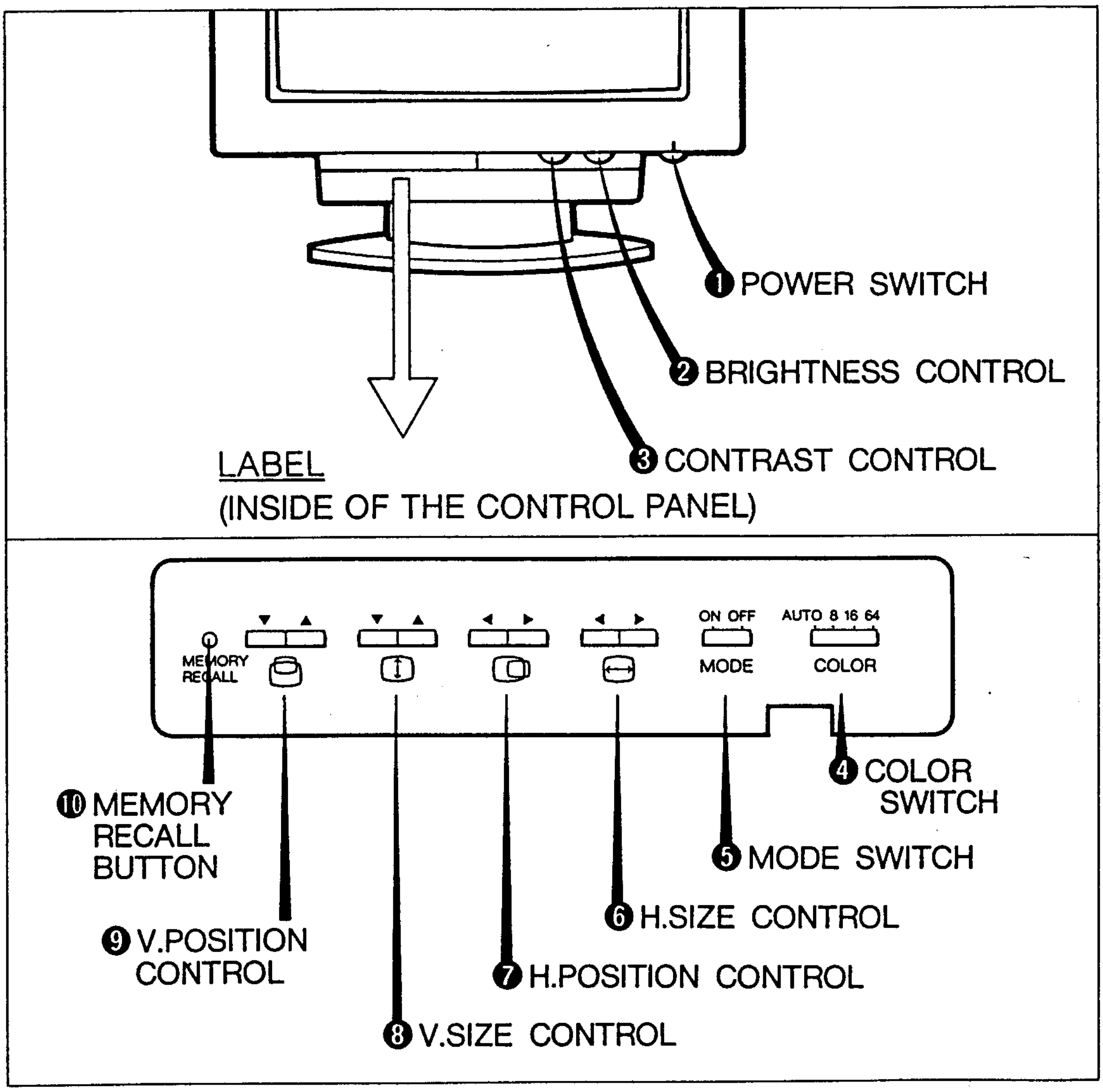
CAUTIONS

When setting up and using your MultiSync 3D Color Monitor, pay special attention to the following:

— To eliminate eye fatigue, do not use your MultiSync 3D Color Monitor against a bright background or where sunlight or other light sources will shine directly on the monitor.
— Your MultiSync 3D Color Monitor should be placed just below eye level for optimum viewing.
— Allow adequate ventilation around the monitor so that heat from the monitor can properly dissipate.
— Neither the monitor itself, nor any other heavy object, should rest on the power cord. Damage to a power cord can cause fire or electrical shock.
— Keep the monitor away from high capacity transformers, electric motors and other strong magnetic fields.
— Your MultiSync 3D Color Monitor should not be used in damp, dusty or dirty areas.
— Handle your MultiSync 3D Color Monitor with care when transporting it.
— Since the image screen surface of cathode ray tube (CRT M34KBG23XX211 (T4 (2)) used with JC-1404HMN has electric charge prevention treatment applied, to clean the screen surface, use soft paper (such as lens cleaning paper) or cloth (such as cotton and gauze) with neutral detergent or ethyl alcohol* soaked and wipe carefully.

*CAUTION
Use care since touching the cabinet with ethyl alcohol can cause chemical reaction resulting in discoloring and spoiling the appearance.

ADJUSTING THE FRONT CONTROLS


❶ POWER SWITCH
❷ BRIGHTNESS CONTROL
❸ CONTRAST CONTROL
LABEL
(INSIDE OF THE CONTROL PANEL)
MEMORY RECALL
ON OFF
MODE
AUTO 8 16 64
COLOR
❹ COLOR SWITCH
❺ MODE SWITCH
❻ H.SIZE CONTROL
❼ H.POSITION CONTROL
❽ V.SIZE CONTROL
❾ V.POSITION CONTROL
❿ MEMORY RECALL BUTTON

❶ POWER SWITCH

Used to turn the power ON or OFF. When the power is ON, the LED power indicator, located on the front of the monitor, is lit.

❷ BRIGHTNESS CONTROL

Used to adjust the display's brightness preferred by the user.

❸ CONTRAST CONTROL

Used to adjust display's contrast preferred by the user.

❹ COLOR SWITCH

When the monitor receives a TTL color video signal, one of the four color configurations (AUTO, 8, 16, 64) must be selected.

COLOR SWITCH	COLOR MODE
Auto	IBM CGA, EGA or Compatible Graphics adapter
8	8 Colors
16	16 Colors with IBM Brown
64	64 Colors

This switch works with preset TTL modes that the monitor identifies automatically.

❺ MODE SWITCH

This switch selects either the monochrome mode or color mode with a TTL video signal input.
With an Analog video signal input and MODE SWITCH ON, the monitor will give the user an additional user programmable memory area.

MODE SWITCH	Input Video Signal	MODE
OFF	TTL	General Color Mode (CGA, EGA)
	ANALOG	General Analog Mode (VGA, PGC, etc)
ON	TTL	Monochrome Mode (MDA)
	ANALOG	User Programmable Memory Area

For more detail, see the signal identification flowchart.

❻ H. SIZE CONTROL

Adjust these controls for the preferred horizontal size of the display.

❼ H. POSITION CONTROL

Adjust these controls for the proper horizontal position of the display.

❽ V. SIZE CONTROL

Adjust these controls for the vertical size of display preferred.

❾ V. POSITION CONTROL

Adjust these controls for the proper vertical position of the display.

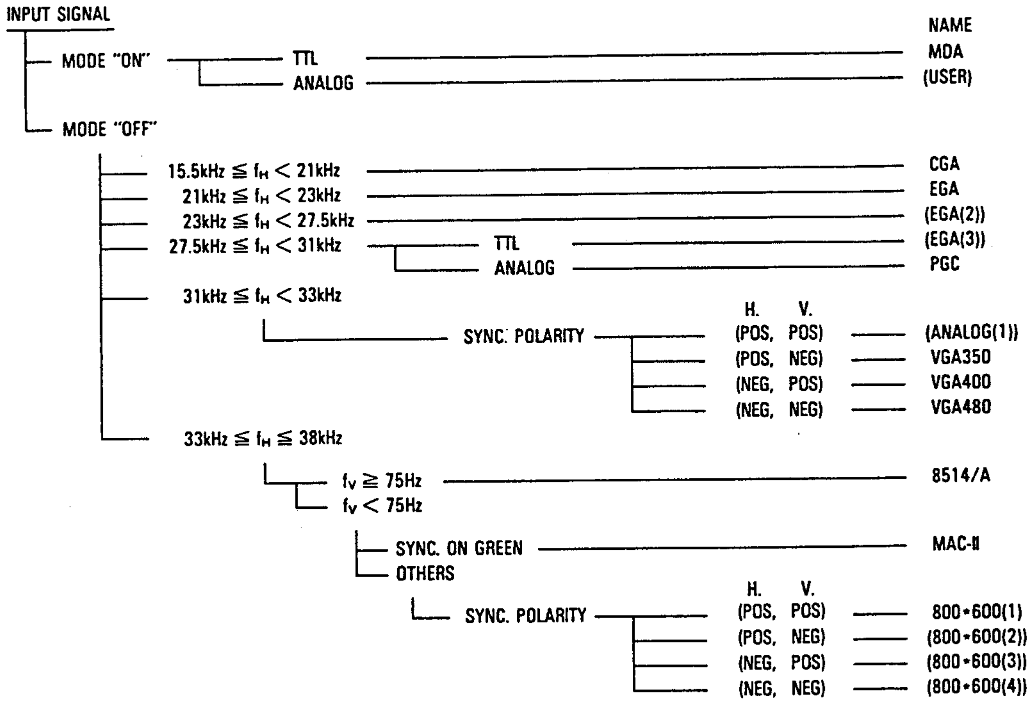
A few seconds after the user has adjusted the size and/or the position, the monitor's CPU will save the new control data into it's memory automatically.

NOTE: The monitor will display the screen configuration that was saved last.

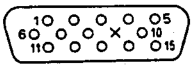
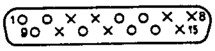
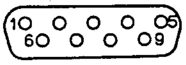
❿ MEMORY RECALL BUTTON

This button resets the data of user changeable memory and recalls the factory preset data.

SIGNAL IDENTIFICATION FLOWCHART


INPUT SIGNAL
NAME
MODE "ON"
TTL
MDA
ANALOG
(USER)
MODE "OFF"
15.5kHz ≦ fH < 21kHz
CGA
21kHz ≦ fH < 23kHz
EGA
23kHz ≦ fH < 27.5kHz
(EGA(2))
27.5kHz ≦ fH < 31kHz
TTL
(EGA(3))
ANALOG
PGC
31kHz ≦ fH < 33kHz
H. V.
SYNC. POLARITY
(POS, POS)
(ANALOG(1))
(POS, NEG)
VGA350
(NEG, POS)
VGA400
(NEG, NEG)
VGA480
33kHz ≦ fH ≦ 38kHz
fV ≧ 75Hz
8514/A
fV < 75Hz
SYNC. ON GREEN
MAC-II
OTHERS
H. V.
SYNC. POLARITY
(POS, POS)
800•600(1)
(POS, NEG)
(800•600(2))
(NEG, POS)
(800•600(3))
(NEG, NEG)
(800•600(4))

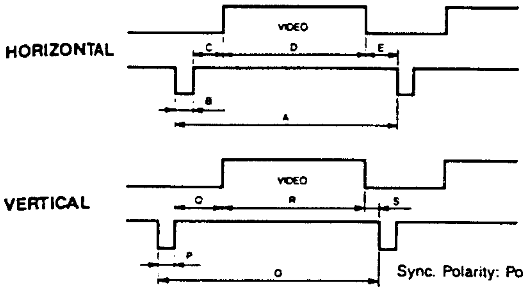
PIN ASSIGNMENTS

	 *15 pin mini D-sub male	 **15 pin D-sub male	 ***9 pin D-sub male			
			IBM MDA	IBM CGA	IBM EGA	IBM PGC
1	RED VIDEO	RED GROUND	GROUND	GROUND	GROUND	RED
2	GREEN VIDEO	RED	NO-CONNECTION	GROUND	SECONDARY RED	GREEN
3	BLUE VIDEO	NO-CONNECTION	NO-CONNECTION	RED	PRIMARY RED	BLUE
4	GROUND	NO-CONNECTION	NO-CONNECTION	GREEN	PRIMARY GREEN	COMPOSITE SYNC
5	GROUND	GREEN WITH SYNC	NO-CONNECTION	BLUE	PRIMARY BLUE	NO-CONNECTION
6	RED GROUND	GREEN GROUND	INTENSITY	INTENSITY	SECONDARY GREEN	RED GROUND
7	GREEN GROUND	NO-CONNECTION	VIDEO	NO-CONNECTION	SECONDARY BLUE	GREEN GROUND
8	BLUE GROUND	NO-CONNECTION	H SYNC	H SYNC	H SYNC	BLUE GROUND
9	NO-CONNECTION	BLUE	V SYNC	V SYNC	V SYNC	GROUND
10	GROUND	NO-CONNECTION				
11	GROUND	GROUND				
12	NO-CONNECTION	NO-CONNECTION				
13	H SYNC	BLUE GROUND				
14	V SYNC	GROUND				
15	NO-CONNECTION	NO-CONNECTION				

*15 Pin mini D-sub male connector is on the captive signal cable, for use with the IBM VGA, 8514/A or compatible graphics adapters.
**15 Pin D-sub male connector is on the 15 Pin mini to 15 Pin D-sub adapter, for use with the Apple Macintosh II Video Card.
***9 Pin D-sub male connector is on the 15 Pin mini to 9 Pin D-sub adapter, for use with the IBM MDA, CGA, EGA, PGC or compatible graphics adapters.

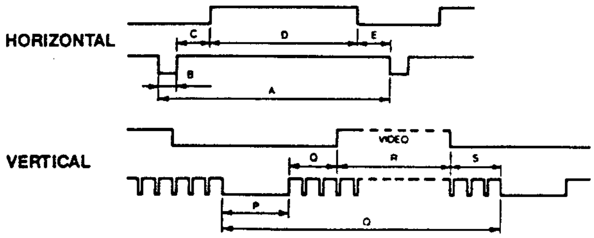
TIMING CHARTS

SEPARATE SYNC.


HORIZONTAL
VIDEO
C
D
E
B
A
VERTICAL
VIDEO
Q
R
S
P
O

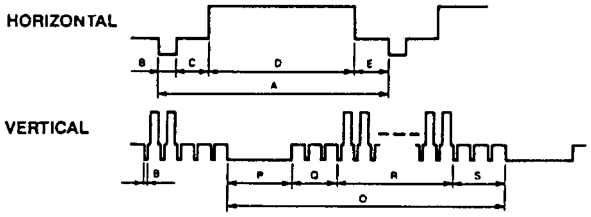
Sync. Polarity: Positive/Negative

COMPOSITE SYNC.


HORIZONTAL
C
D
E
B
A
VERTICAL
VIDEO
Q
R
S
P
O

Sync. Polarity: Positive/Negative

COMPOSITE SYNC. & VIDEO (SYNC. ON GREEN)

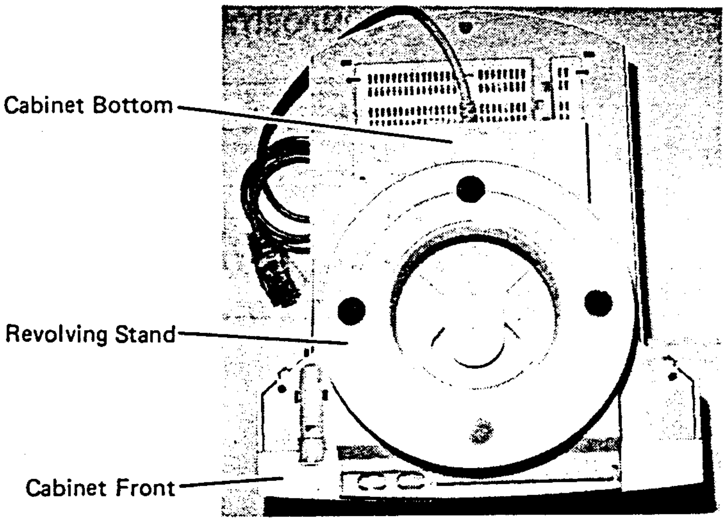

HORIZONTAL
B
C
D
E
A
VERTICAL
B
P
Q
R
S
O

Sync. Polarity: Negative

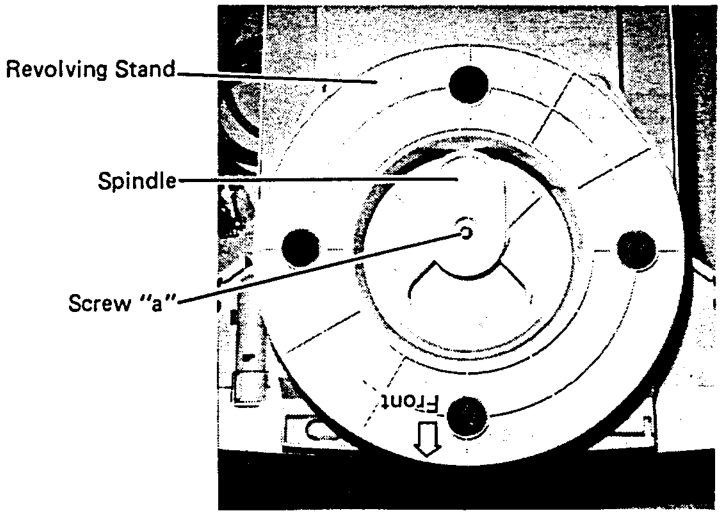
PRESET TIMING

	MDA Compatible	CGA Compatible	EGA Compatible	PGC Compatible	VGA/MCGA Compatible			8514/A Compatible	Macintosh II Video Card	800 × 600
f_H	18.43 kHz	15.85 kHz	22 kHz	30.48 kHz	31.47kHz			35.52 kHz	35.00kHz	35.16 kHz
$A_{\mu s}$	54.3	63	45.5	33	31.78			28.15	28.57	28.44
$B_{\mu s}$	8.3	4.2	4.9	4.5	3.81			3.92	2.12	2.00
$C_{\mu s}$	1.1	7.2	1.6	2.8	1.91			1.25	3.17	3.56
$D_{\mu s}$	44.3	45	39	25.6	25.42			22.81	21.16	22.22
$E_{\mu s}$	0.6	6.6	0	0.1	0.64			0.18	2.12	0.67
f_V	50 Hz	60.5Hz	60 Hz	60 Hz	70.09Hz		59.94Hz	86.96 Hz	66.67 Hz	56.25Hz
O_{ms}	20.1	16.52	16.68	16.6	14.27	14.27	16.68	11.500	15.00	17.78
P_{ms}	0.9	0.19	0.6	0.07	0.06	0.06	0.06	0.113	0.09	0.06
Q_{ms}	0.2	2.15	0.08	2.12	1.91	1.11	1.05	0.577/0.563	1.12	0.63
R_{ms}	19.0	12.6	16	13.05	11.12	12.71	15.25	10.810	13.71	17.07
S_{ms}	0	1.58	0	1.36	1.18	0.38	0.32	0/0.014	0.09	0.03
Remarks	TTL Video	TTL Video	TTL Video	Analog Video	Analog Video	Analog Video	Analog Video	Analog Video Interlace	Analog Video	Analog Video

THE METHOD FOR REMOVING THE TILT SWIVEL BASE

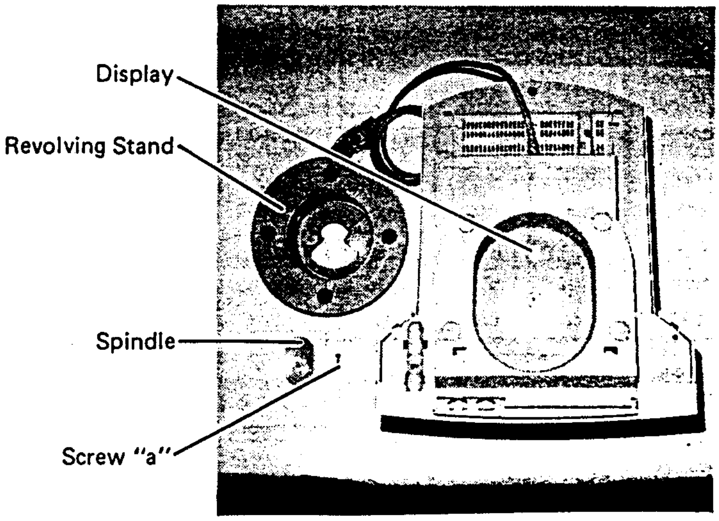

Cabinet Bottom
Revolving Stand
Cabinet Front

1. Turn the monitor set upside down as shown. (Top VIEW)


Revolving Stand
Spindle
Screw "a"
Front

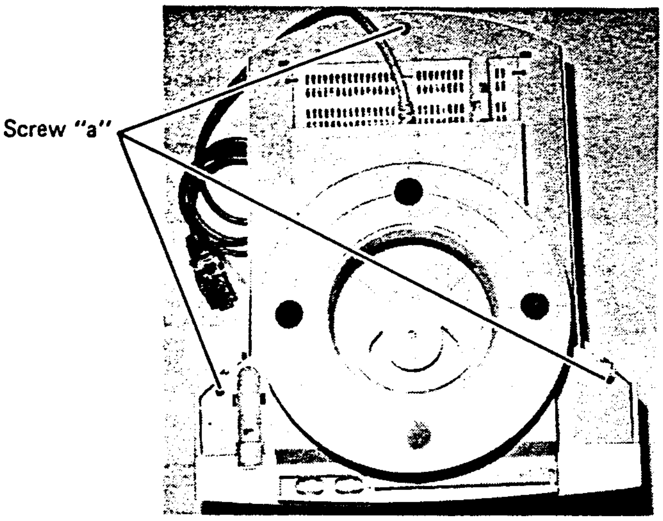
2. Move the revolving stand so that a "⇧FRONT" mark comes to the cabinet front side.

3. Remove the Screw "a", then remove both spindle and revolving stand from the display.

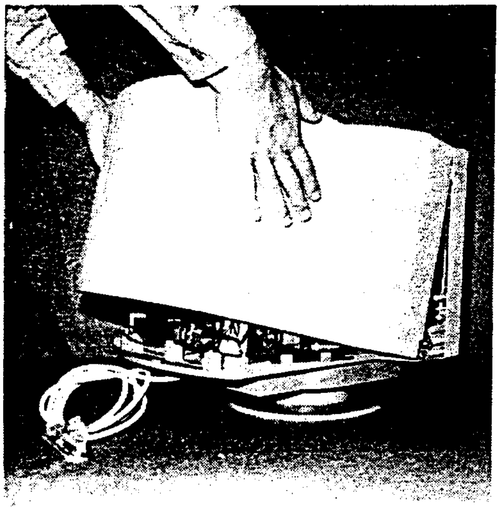

Display
Revolving Stand
Spindle
Screw "a"

4. The removed parts consist of a display, revolving stand, spindle and screw "a" as shown.

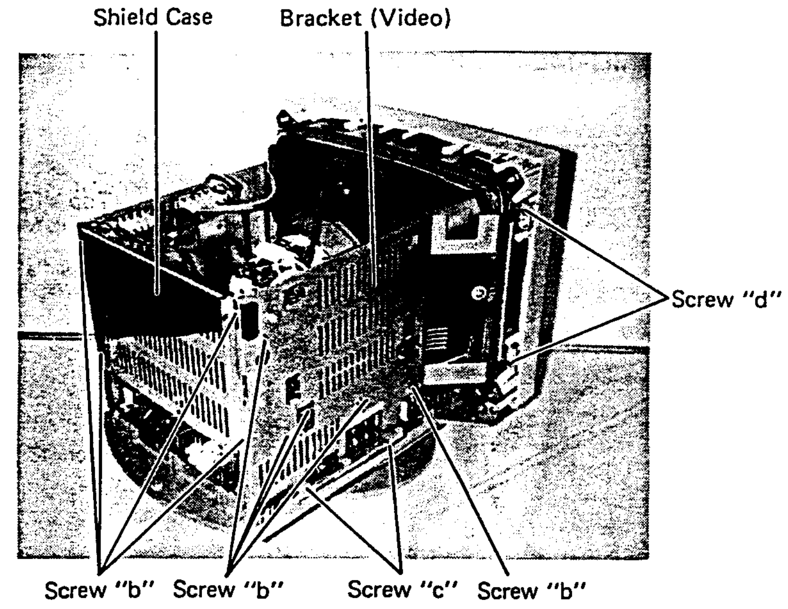
MAIN PWB DISASSEMBLY (for JC-1404HME-1/EE-1)



1. Turn the monitor set upside down as shown. (Top VIEW)
2. Remove three screws "a" from the cabinet bottom.



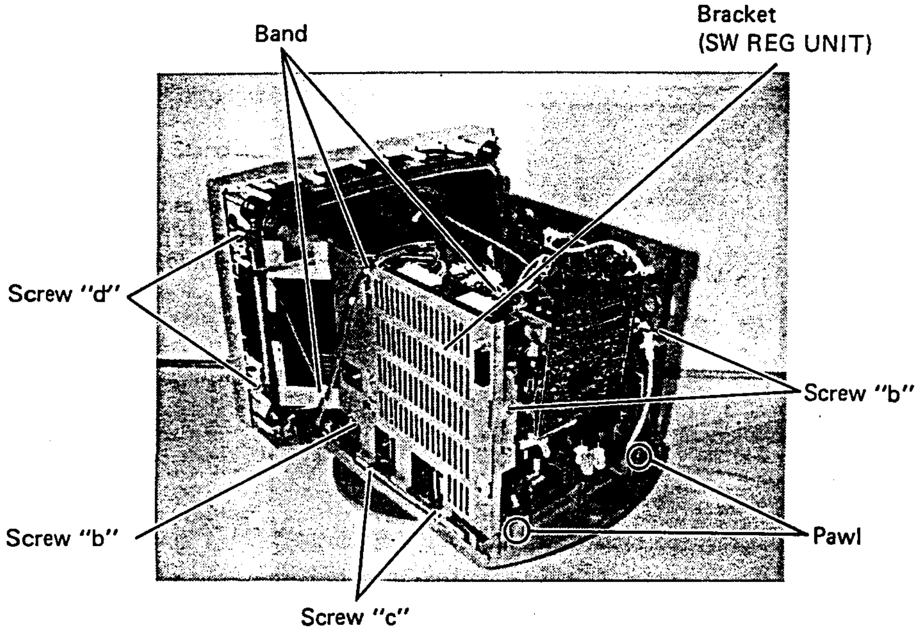
3. Invert the monitor set as normal, then remove the cabinet back.


Shield Case
Bracket (Video)
Screw "d"
Screw "b"
Screw "b"
Screw "c"
Screw "b"

4. Remove the four screws "b" of the Shield Case and remove the Shield Case.

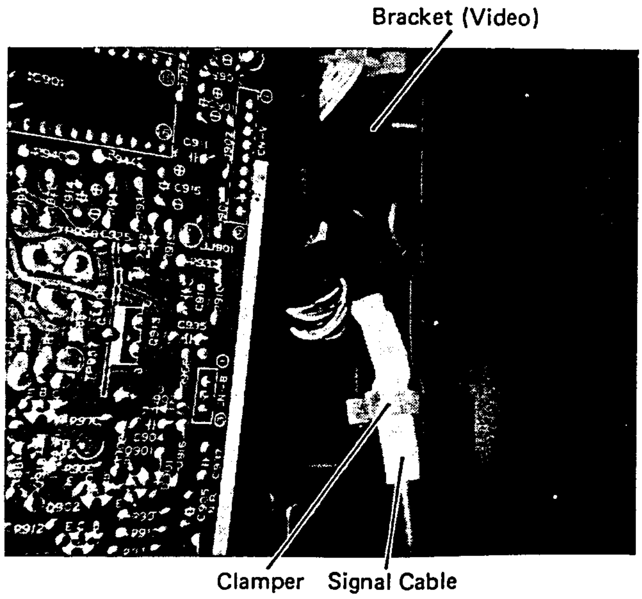
5. Remove the five screws "b".
   Remove the two screws "c".
   Remove the two screws "d".

6. Disconnect the connectors "CN-A", "CN-M", "CN-S" and "CN-V". (from SUB PWB UNIT)
   Lift up the Bracket (Video).

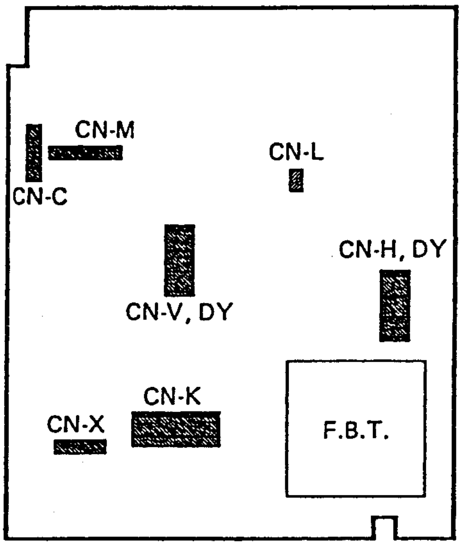

Band
Bracket
(SW REG UNIT)
Screw "d"
Screw "b"
Screw "b"
Pawl
Screw "c"

7. Remove the three screws "b".
   Remove the two screws "c".
   Remove the two screws "d".

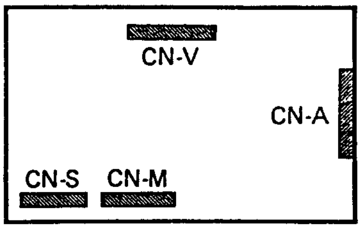
8. Cut the three bands and disconnect the connectors "CN-K", "CN-Z" and "CN-SW". (from SW REG UNIT)
   Lift up the Bracket (SW REG UNIT).


Bracket (Video)
Clamper
Signal Cable

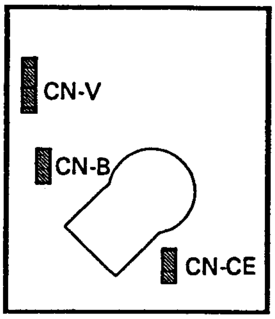
NOTE: The way of fixing the signal cable at Bracket (Video).


CN-M
CN-C
CN-L
CN-H, DY
CN-V, DY
CN-K
CN-X
F.B.T.

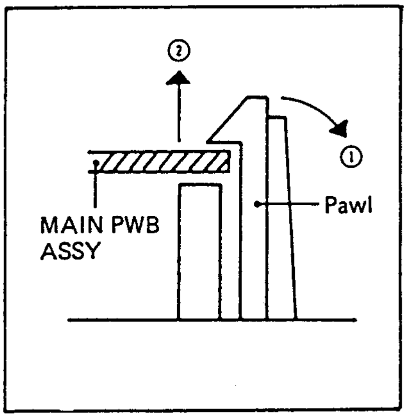
MAIN PWB


CN-V
CN-A
CN-S
CN-M

SUB PWB


CN-V
CN-B
CN-CE

CRT PWB

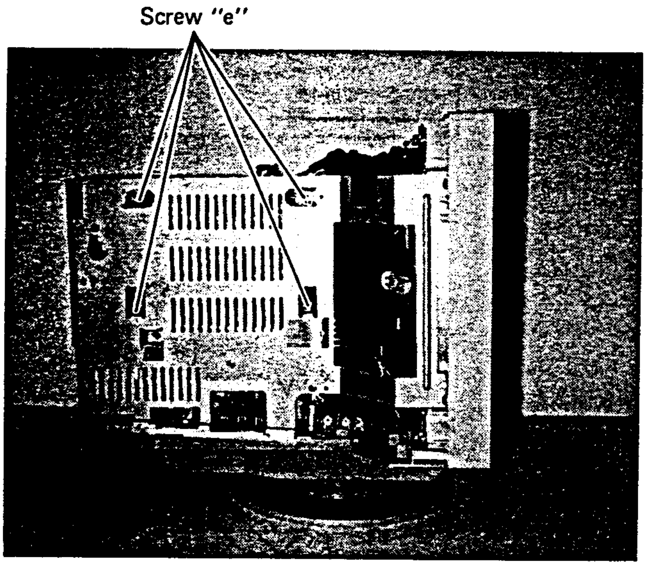

②
①
MAIN PWB ASSY
Pawl

9. Disconnect the connector "CN-B" and "CN-CE" (from CRT PWB ASSY).
   Disconnect the connector "CN-X" (from MAIN PWB ASSY).
   Remove the Anode Cap from CRT.
   Disconnect the CRT PWB ASSY.

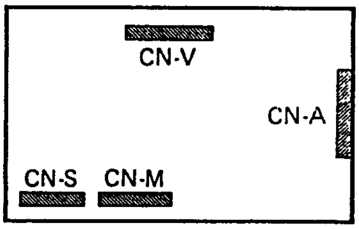
   NOTE: Carefully discharge the CRT anode by shorting it to ground before removing anode cap.

10. Disconnect the Connectors "CN-H, DY", "CN-V, DY", "CN-C", and "CN-L" (from MAIN PWB ASSY).
    Disengage pawls at two places, then slide and lift up the MAIN PWB ASSY.

SUB PWB UNIT DISASSEMBLY (for JC-1404HME-1/EE-1)

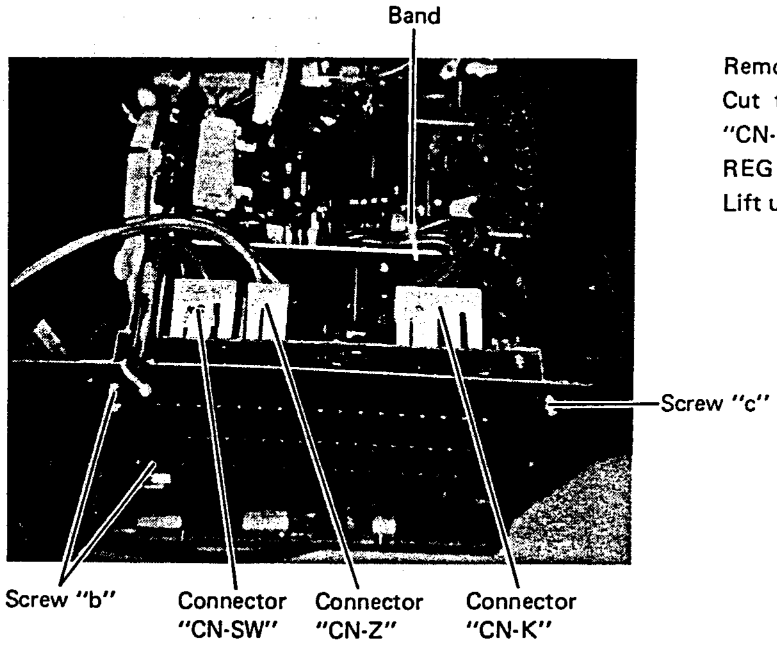


Remove the four screws "e".
Disconnect the connectors "CN-A", "CN-M", "CN-S" and "CN-V". (from SUB PWB UNIT)
Remove the SUB PWB UNIT.


CN-V
CN-A
CN-S
CN-M

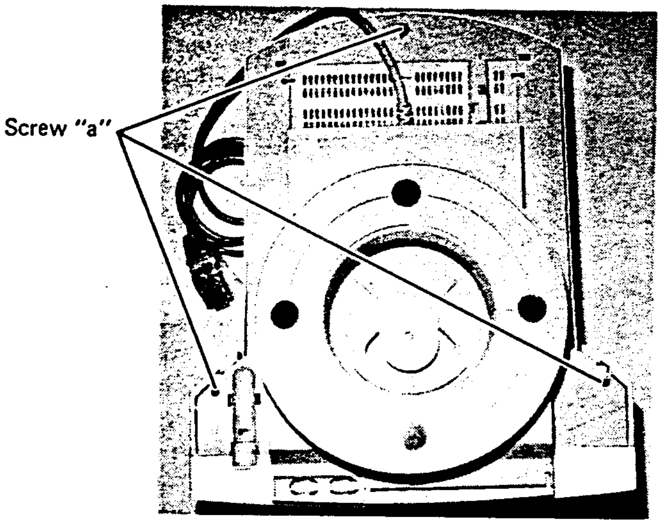
SUB PWB

SW REG UNIT DISASSEMBLY (for JC-1404HME-1/EE-1)

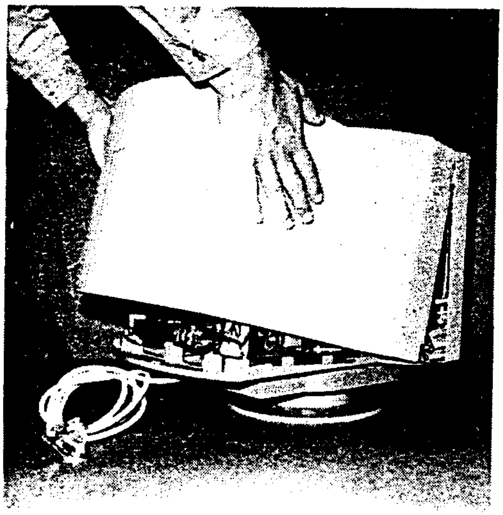

Band
Screw "c"
Screw "b"
Connector "CN-SW"
Connector "CN-Z"
Connector "CN-K"

Remove the two screws "b" and two screw "c".
Cut the band and disconnect the connectors "CN-K", "CN-Z" and "CN-SW". (from SW REG UNIT)
Lift up the SW REG UNIT.

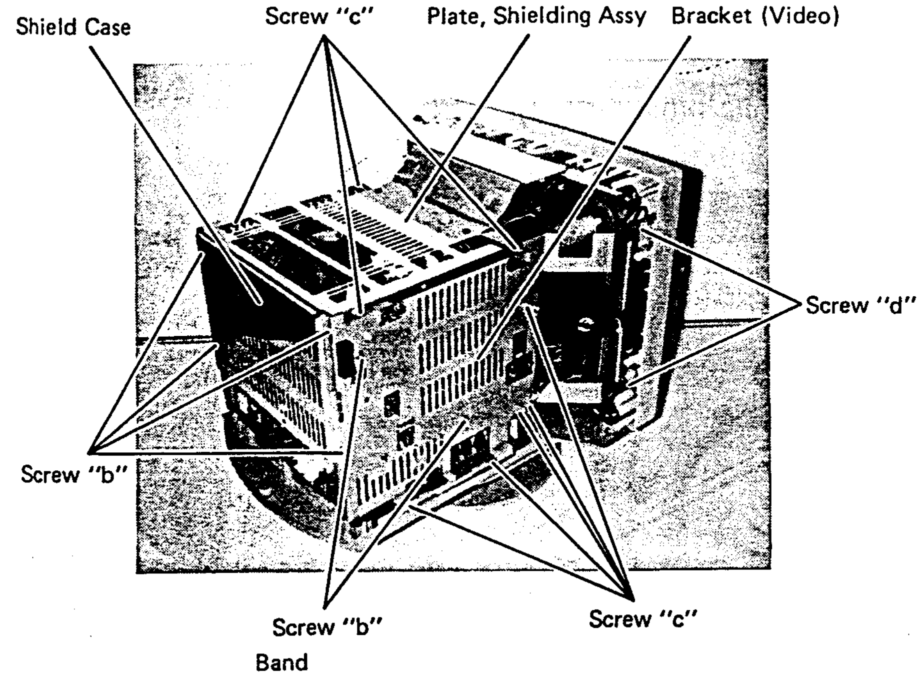
MAIN PWB DISASSEMBLY (for JC-1404HMED-1)



1. Turn the monitor set upside down as shown. (Top VIEW)
2. Remove three screws "a" from the cabinet bottom.



3. Invert the monitor set as normal, then remove the cabinet back.

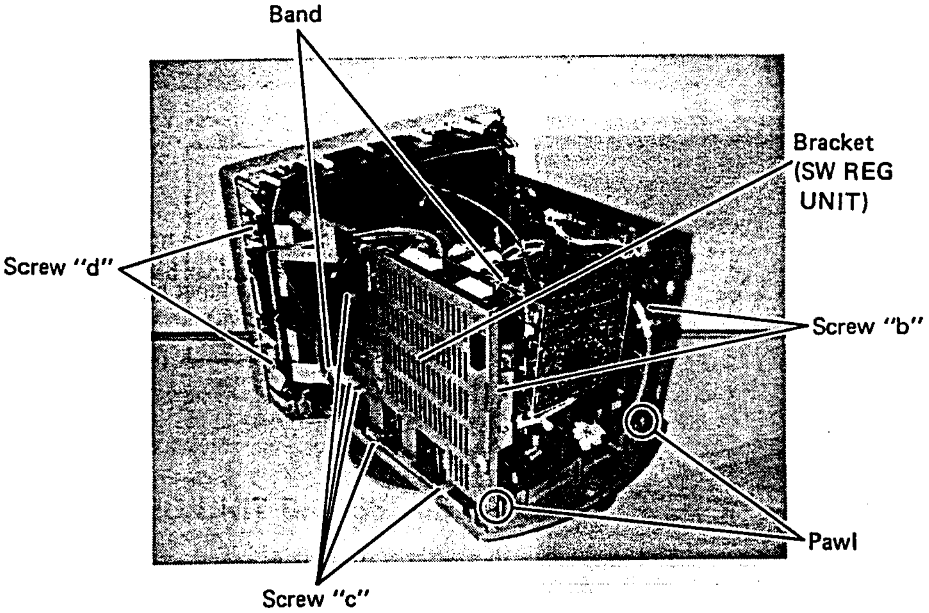

Shield Case
Screw "c"
Plate, Shielding Assy
Bracket (Video)
Screw "d"
Screw "b"
Screw "b"
Screw "c"

4. Remove the four screws "c" of the Plate, Shielding Assy and remove the Plate, Shielding Assy.

   Remove the four screws "b" of the Shield case and remove the Shield case.

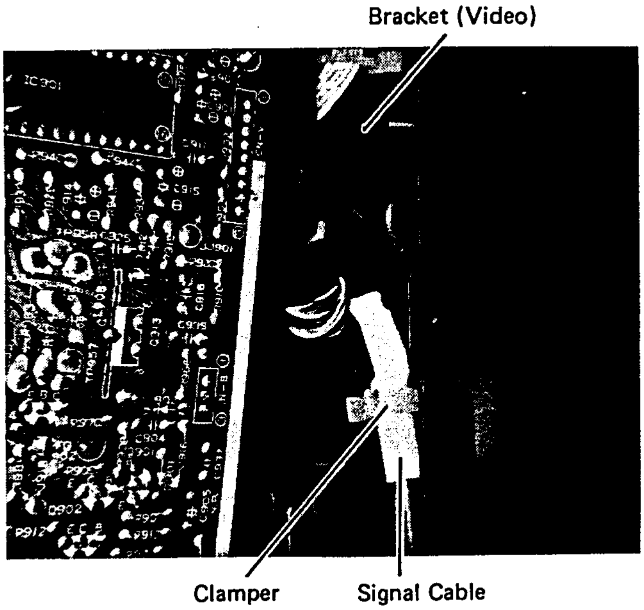
5. Remove the four screws "b".
   Remove the five screws "c".
   Remove the two screws "d".

6. Disconnect the connectors "CN-A", "CN-M", "CN-S" and "CN-V". (from SUB PWB UNIT)
   Lift up the Bracket (Video).

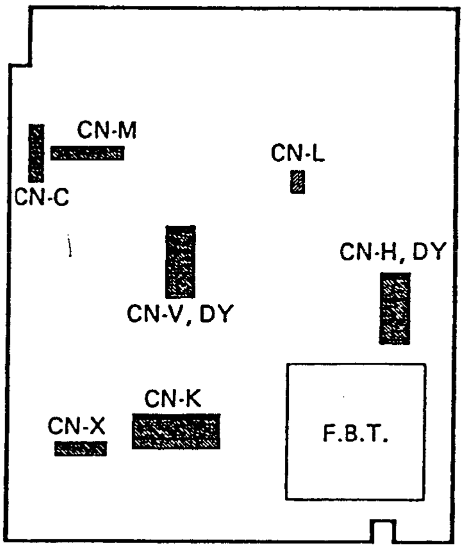

Band
Bracket (SW REG UNIT)
Screw "d"
Screw "b"
Pawl
Screw "c"

7. Remove the two screws "b".
   Remove the five screws "c".
   Remove the two screws "d".

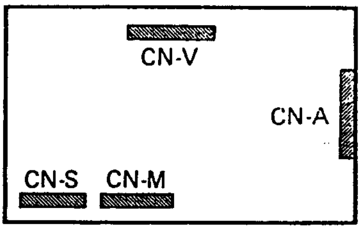
8. Cut the three bands and disconnect the connectors "CN-K", "CN-Z" and "CN-SW". (from SW REG UNIT)
   Lift up the Bracket (SW REG UNIT).


Bracket (Video)
Clamper
Signal Cable

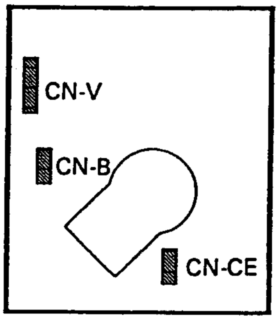
NOTE: The way of fixing the signal cable at Bracket (Video).


CN-M
CN-C
CN-L
CN-H, DY
CN-V, DY
CN-K
CN-X
F.B.T.

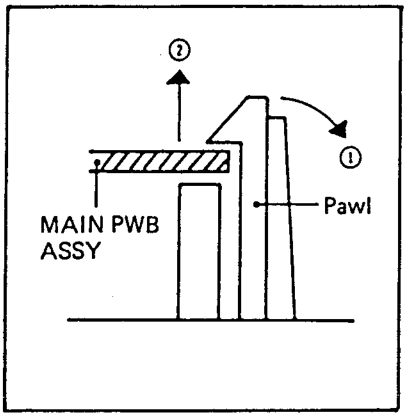
MAIN PWB


CN-V
CN-A
CN-S
CN-M

SUB PWB


CN-V
CN-B
CN-CE

CRT PWB

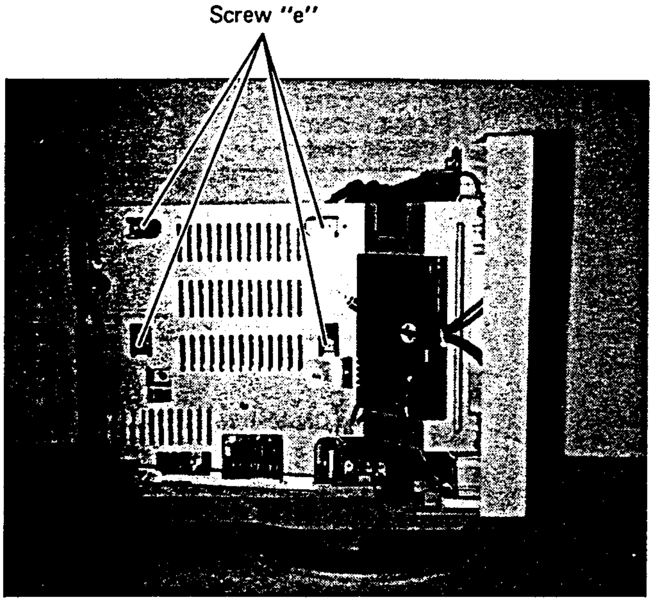

②
①
MAIN PWB ASSY
Pawl

9. Disconnect the connector "CN-B" and "CN-CE" (from CRT PWB ASSY).
   Disconnect the connector "CN-X" (from MAIN PWB ASSY).
   Remove the Anode Cap from CRT.
   Disconnect the CRT PWB ASSY.

   NOTE: Carefully discharge the CRT anode by shorting it to ground before removing anode cap.

10. Disconnect the Connectors "CN-H, DY", "CN-V, DY", "CN-C", and "CN-L" (from MAIN PWB ASSY).
    Disengage pawls at two places, then slide and lift up the MAIN PWB ASSY.

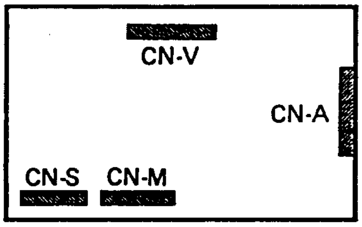
SUB PWB UNIT DISASSEMBLY (for JC-1404HMED-1)



Remove the four screws "e".

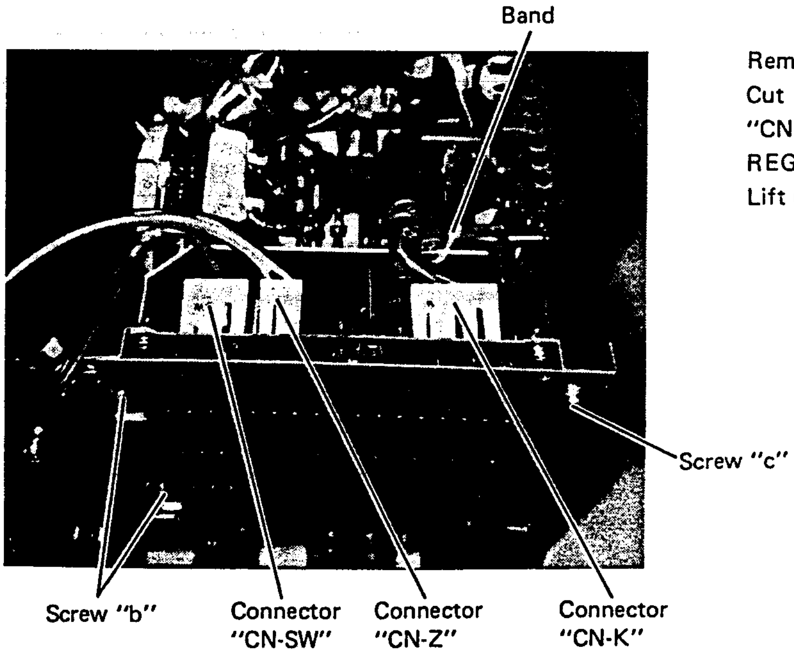
Disconnect the connectors "CN-A", "CN-M", "CN-S" and "CN-V". (from SUB PWB UNIT).

Remove the SUB PWB UNIT.


CN-V
CN-A
CN-S
CN-M

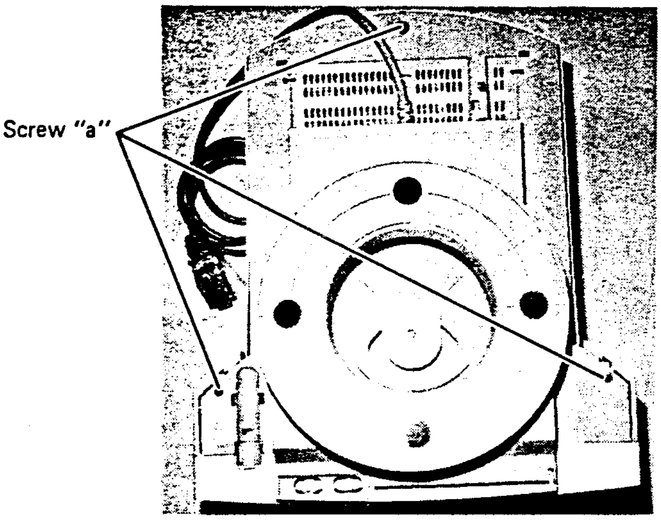
SUB PWB

SW REG UNIT DISASSEMBLY (for JC-1404HMED-1)


Band
Screw "c"
Screw "b"
Connector "CN-SW"
Connector "CN-Z"
Connector "CN-K"

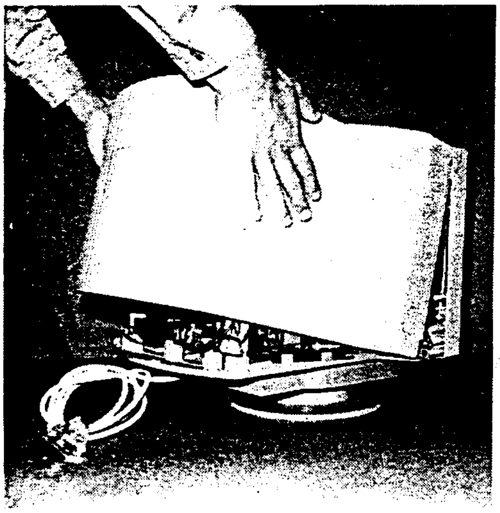
Remove the two screws "b" and the screw "c".
Cut the band and disconnect the connectors "CN-K", "CN-Z" and "CN-SW". (from SW REG UNIT).
Lift up the SW REG UNIT.

MAIN PWB DISASSEMBLY (for JC-1404HMN)

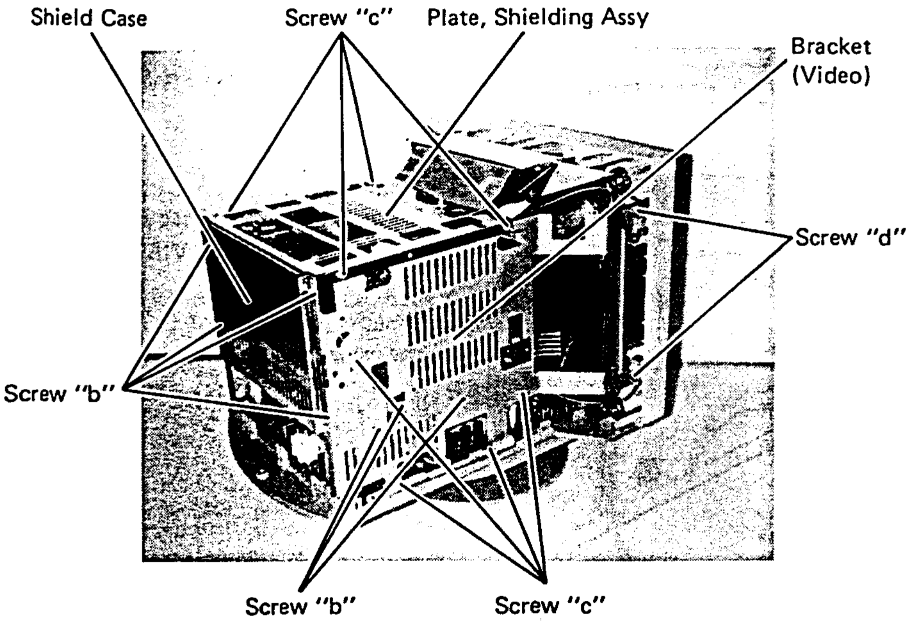


1. Turn the monitor set upside down as shown. (Top VIEW)

2. Remove three screws "a" from the cabinet bottom.



3. Invert the monitor set as normal, then remove the cabinet back.

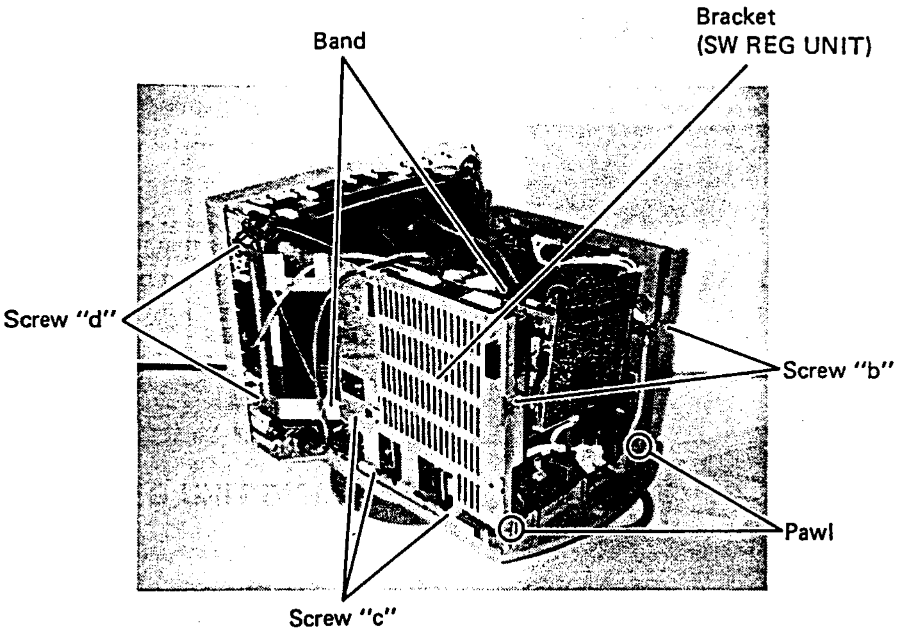

Shield Case
Screw "c"
Plate, Shielding Assy
Bracket (Video)
Screw "d"
Screw "b"
Screw "b"
Screw "c"

4. Remove the four screws "c" of the Plate, Swhielding Assy and remove the Plate, Shield Assy.

   Remove the four screws "b" of the Shield case and remove the Shield case.

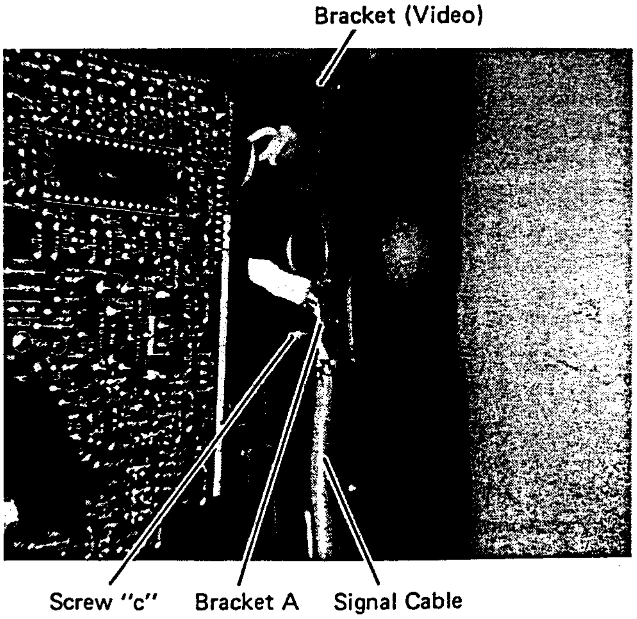
5. Remove the three screws "b".
   Remove the four screws "c".
   Remove the two screws "d".

6. Disconnect the connectors "CN-A", "CN-M", "CN-S" and "CN-V". (from SUB PWB UNIT). Lift up the Bracket (Video).

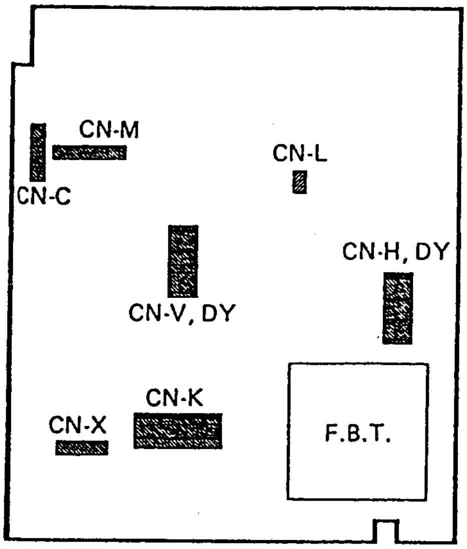

Band
Bracket (SW REG UNIT)
Screw "d"
Screw "b"
Pawl
Screw "c"

7. Remove the two screws "b".
   Remove the three screws "c".
   Remove the two screws "d".

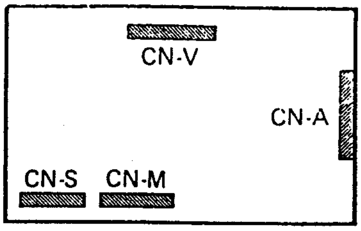
8. Cut the two Bands and disconnect the connectors "CN-K", "CN-Z" and "CN-SW". (from SW REG UNIT)
   Lift up the Bracket (SW REG UNIT).


Bracket (Video)
Screw "c"
Bracket A
Signal Cable

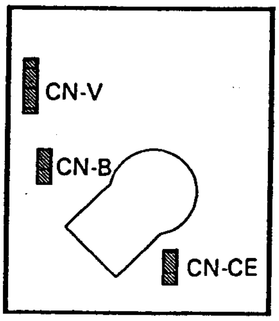
NOTE: The way of fixing the signal cable at Bracket (Video).


CN-M
CN-C
CN-L
CN-H, DY
CN-V, DY
CN-K
CN-X
F.B.T.

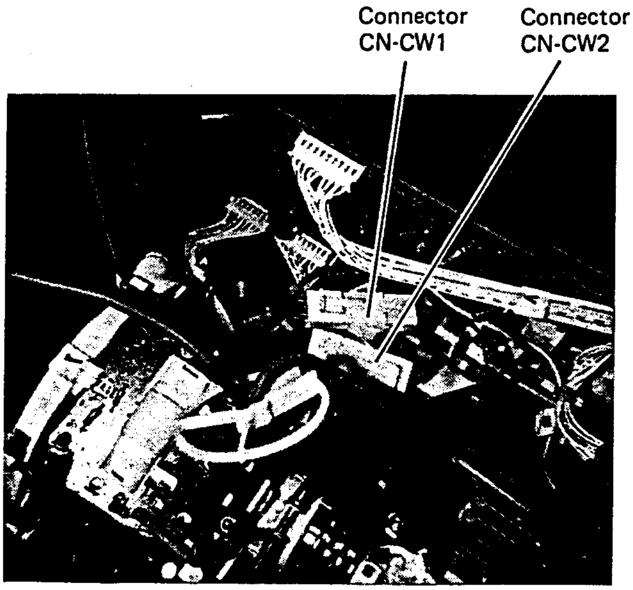
MAIN PWB


CN-V
CN-A
CN-S
CN-M

SUB PWB


CN-V
CN-B
CN-CE

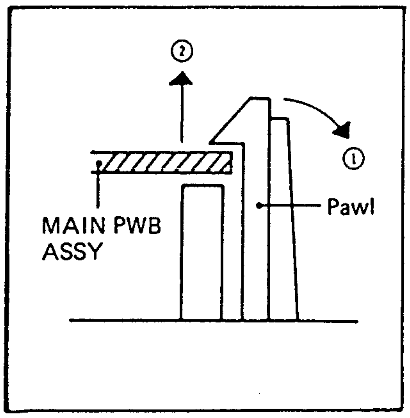
CRT PWB


Connector
CN-CW1
Connector
CN-CW2

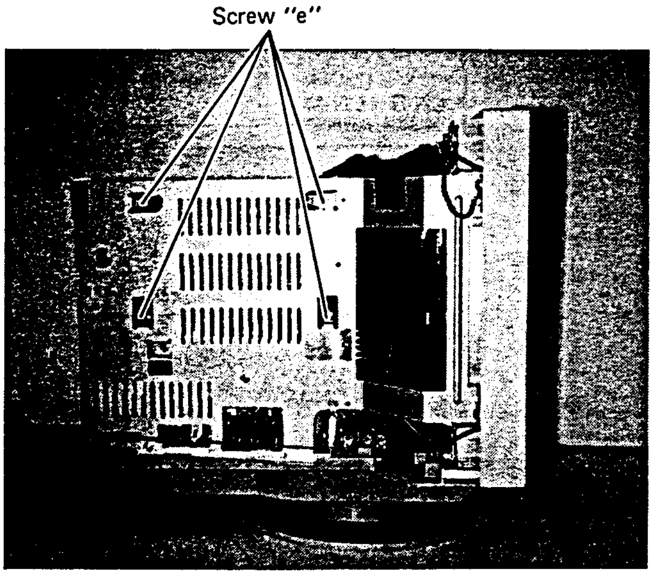
9. Disconnect the connector "CN-B" and "CN-CE" (from CRT PWB ASSY).
   Disconnect the connector "CN-X" (from MAIN PWB ASSY).
   Remove the Anode Cap from CRT.
   Disconnect the CRT PWB ASSY.

   NOTE: Carefully discharge the CRT anode by shorting it to ground before removing anode cap.

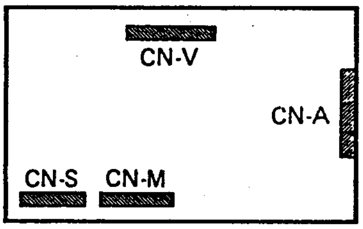
10. Disconnect the Connectors "CN-CW1", "CN-CW2" "CN-H, DY", "CN-V, DY", "CN-C", and "CN-L" (from MAIN PWB ASSY).
    Disengage pawls at two places, then slide and lift up the MAIN PWB ASSY.


②
①
MAIN PWB
ASSY
Pawl

SUB PWB UNIT DISASSEMBLY (for JC-1404HMN)

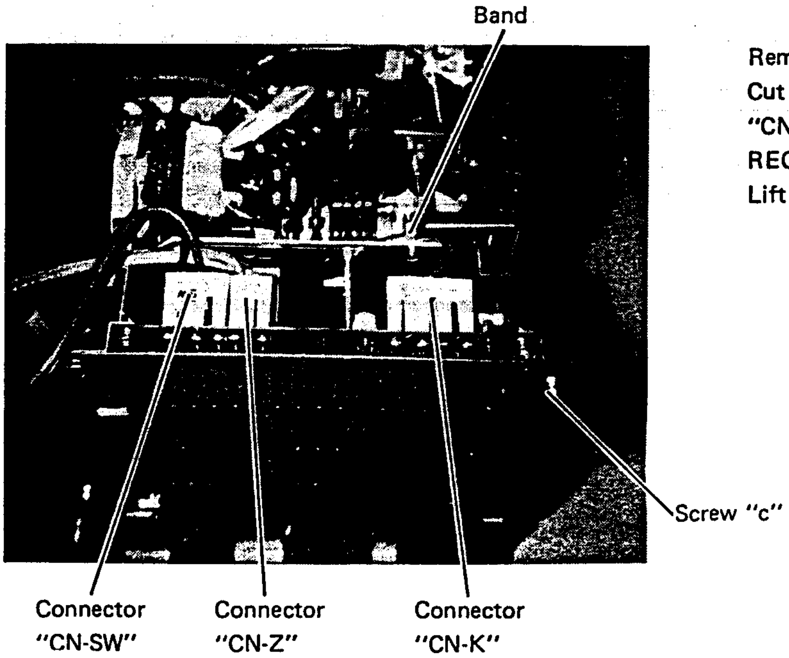


Remove the four screws "e".
Disconnect the connectors "CN-A", "CN-M", "CN-S" and "CN-V". (from SUB PWB UNIT)
Remove the SUB PWB UNIT.


CN-V
CN-A
CN-S
CN-M

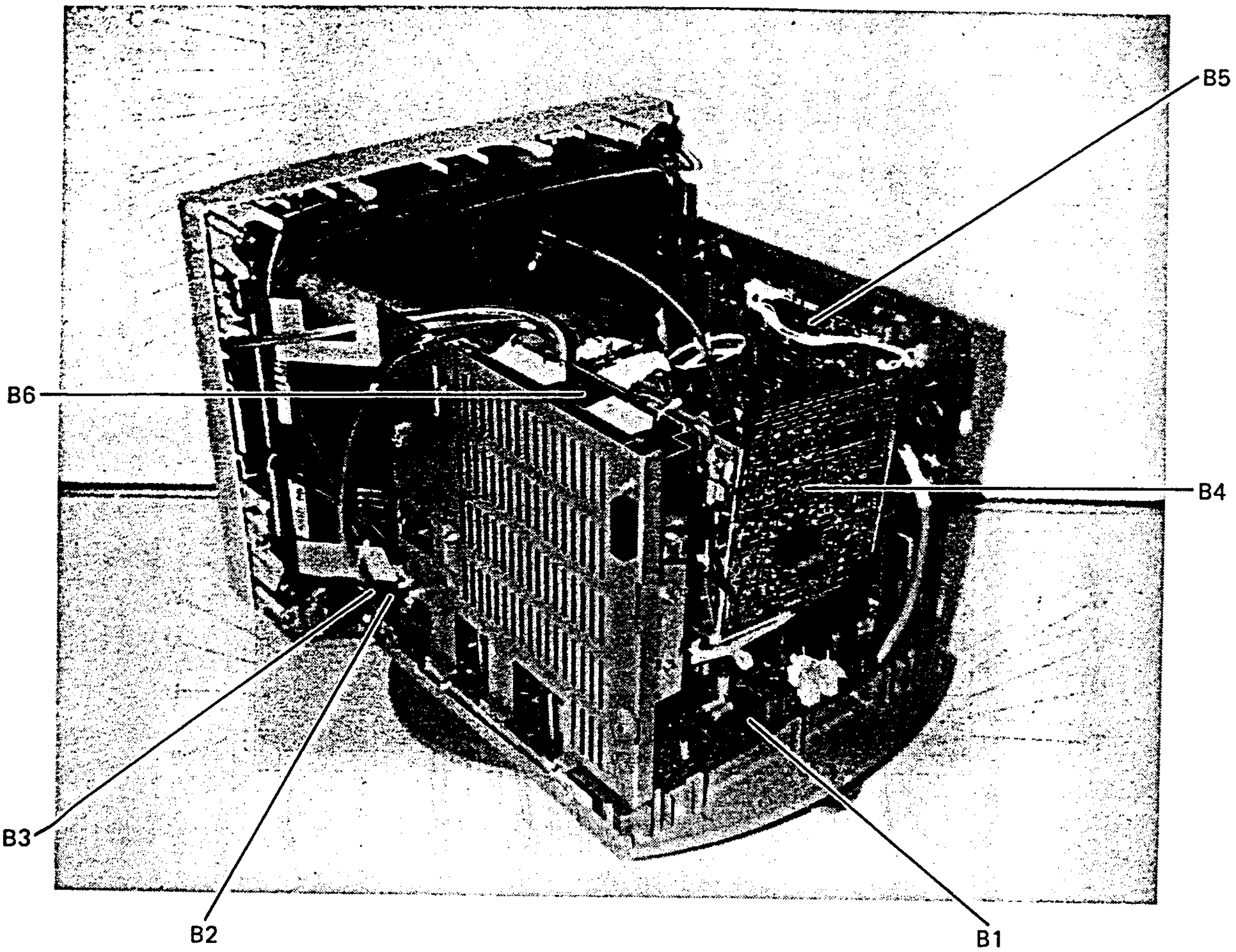
SUB PWB

SW REG UNIT DISASSEMBLY ((for JC-1404HMN)


Band
Screw "c"
Connector "CN-SW"
Connector "CN-Z"
Connector "CN-K"

Remove the screw "c".
Cut the band and disconnect the connectors "CN-K", "CN-Z" and "CN-SW". (from SW REG UNIT)
Lift up the SW REG UNIT.

PARTS LOCATION DIAGRAMS



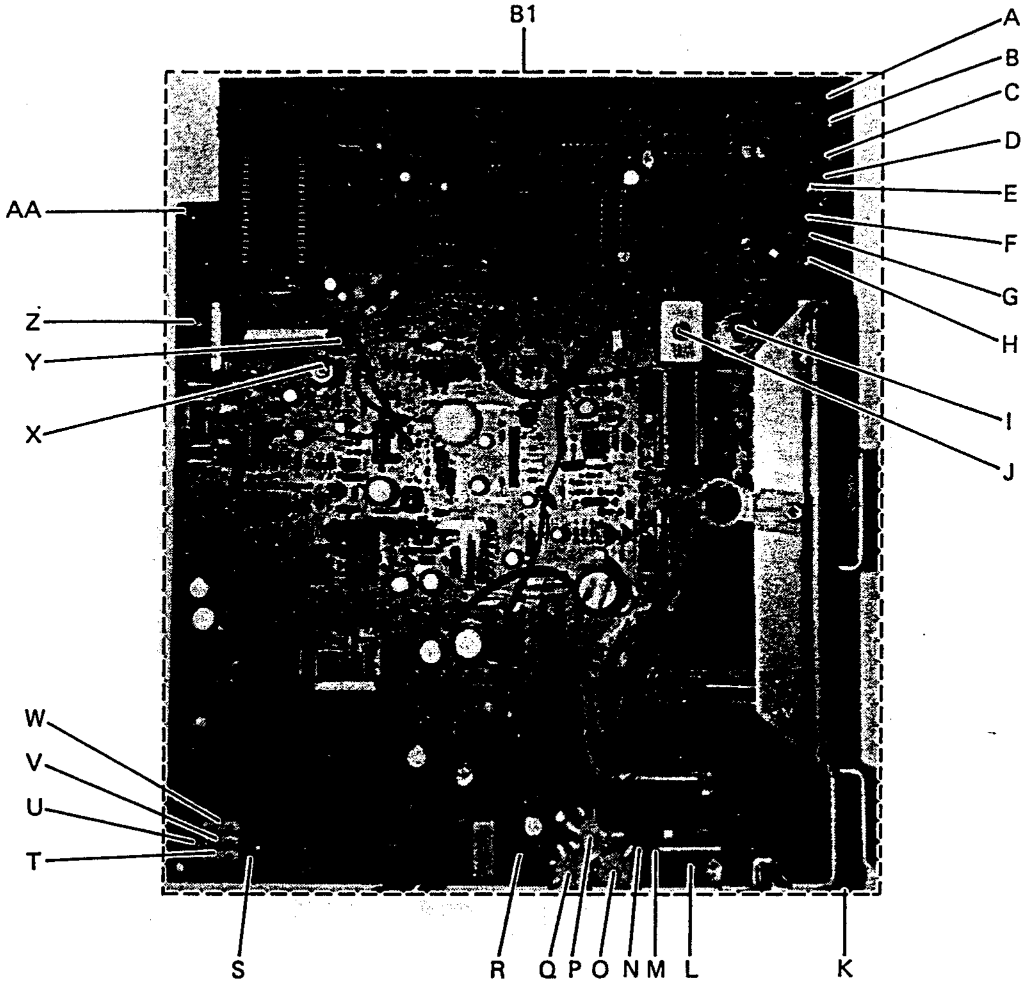
BOARDS

Models JC-1404HME-1/EE-1/ED-1

B1	MAIN PWB ASSY	PWE-248A
B2	CONTROL PWB ASSY	PWE-248B
B3	LED PWB ASSY	PWE-248C
B4	VIDEO/CRT PWB ASSY	PWE-249
B5	SUB PWB UNIT	PWE-282
B6	SW REG UNIT	SMP-93AB-1

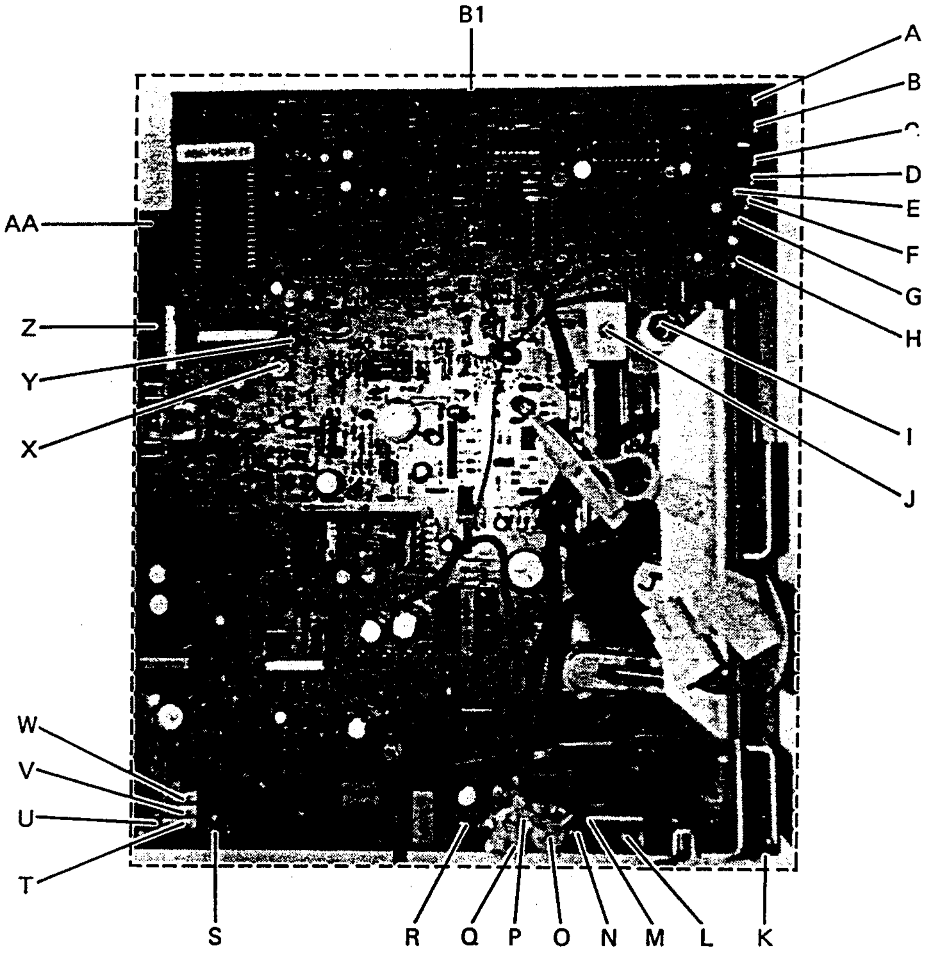
Model JC-1404HMN

B1	MAIN PWB ASSY	PWE-294A
B2	CONTROL PWB ASSY	PWE-294B
B3	LED PWB ASSY	PWE-294C
B4	VIDEO/CRT PWB ASSY	PWE-281
B5	SUB PWB UNIT	PWE-282
B6	SW REG PWB ASSY	PWE-270


B1
A
B
C
D
E
F
G
H
I
J
AA
Z
Y
X
W
V
U
T
S
R
Q
P
O
N
M
L
K

Models JC-1404HME-1/EE-1/ED-1

A	TP501	O	VR2002
B	TP401	P	VR2001
C	TP2005	Q	VR504 H.V. ADJ
D	TP2006	R	TP551
E	VR501 H HOLD (1)	S	VR503
F	TP502	T	CN-RH3
G	VR502 H HOLD (2)	U	TP550
H	VR505	V	CN-RH2
I	L503 H WIDTH COIL	W	CN-RH1
J	L504 H LIN COIL	X	VR402 SIDE PIN ADJ
K	TP2001	Y	VR403 V. LIN ADJ
L	TP2003	Z	TP151
M	TP2002	AA	TP152
N	TP2004	B1	MAIN PWB ASSY (PWE-248A)


B1
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I
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AA
Z
Y
X
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V
U
T
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Q
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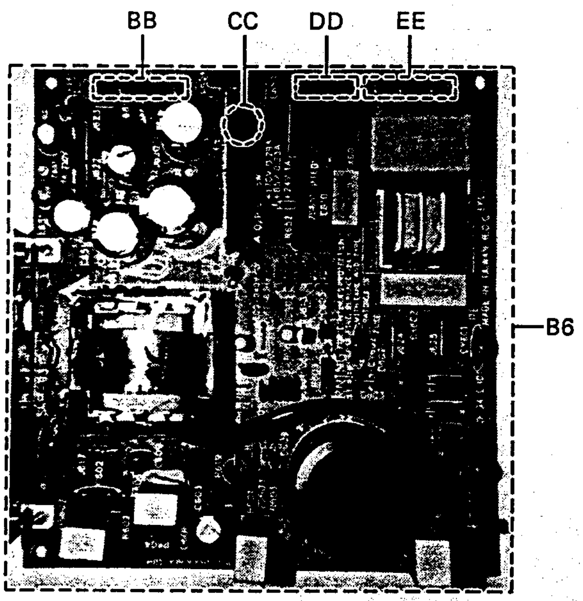
M
L
K

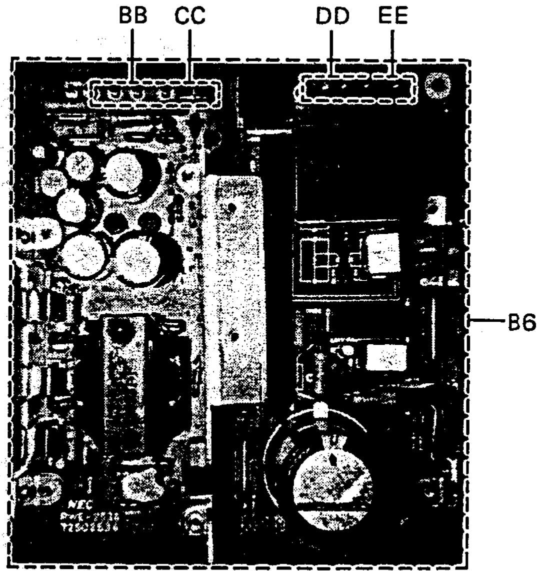
Model JC-1404HMN

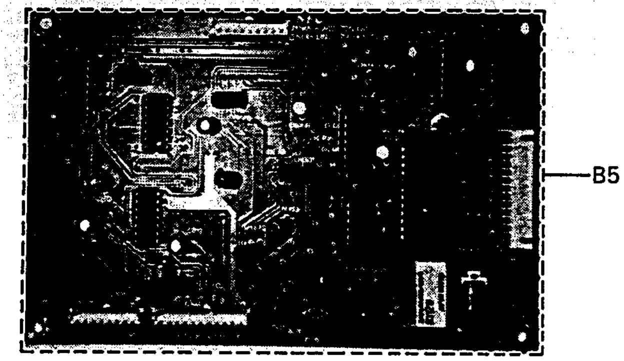
A	TP501	O	VR2002
B	TP401	P	VR2001
C	TP2005	Q	VR504 H.V. ADJ
D	TP2006	R	TP551
E	VR501 H HOLD (1)	S	VR503
F	TP502	T	CN-RH3
G	VR502 H HOLD (2)	U	TP550
H	VR505	V	CN-RH2
I	L503 H WIDTH COIL	W	CN-RH1
J	L504 H LIN COIL	X	VR402 SIDE PIN ADJ
K	TP2001	Y	VR403 V. LIN ADJ
L	TP2003	Z	TP151
M	TP2002	AA	TP152
N	TP2004	B1	MAIN PWB ASSY (PWE-294A)

Models JC-1404HM-1/EE-1/ED-1



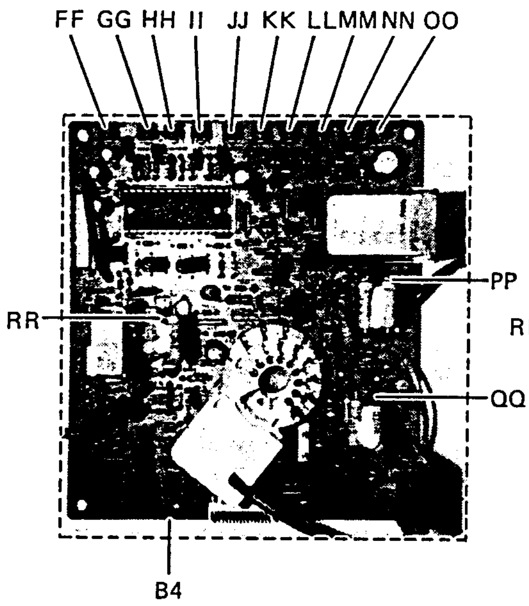
Model JC-1404HMN



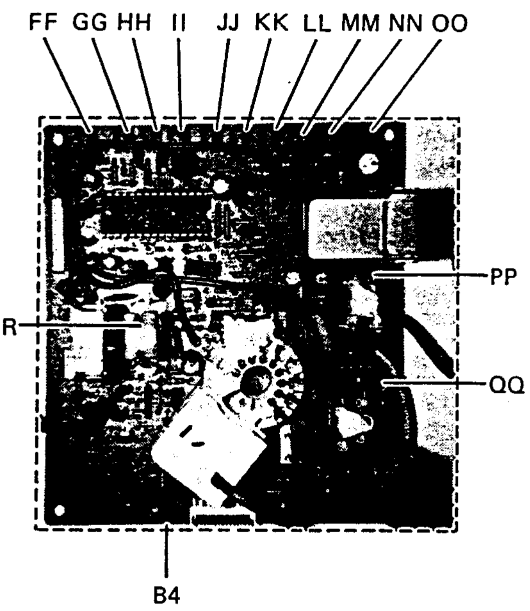


BB	CONNECTOR K	B2	CONTROL PWB ASSY (PWE-248B)	JC-1404HME-1/EE-1/ED-1
CC	VR651	B2	CONTROL PWB ASSY (PWE-294B)	JC-1404HMN
DD	CONNECTOR Z	B5	SUB PWB UNIT	
EE	CONNECTOR SW	B6	SW REG UNIT (SMP-93AB-1)	JC-1404HME-1/EE-1/ED-1
		B6	SW REG PWB ASSY (PWE-270)	JC-1404HMN

Models JC-1404HME-1/EE-1/ED-1


FF
GG
HH
II
JJ
KK
LL
MM
NN
OO
PP
RR
QQ
B4

Model JC-1404HMN


FF
GG
HH
II
JJ
KK
LL
MM
NN
OO
PP
RR
QQ
B4

FF	VR904 SUB CONT	
GG	VR903 GAIN-B	
HH	VR902 GAIN-G	
II	VR901 GAIN-R	
JJ	VR910 BIAS-B	
KK	VR909 BIAS-G	
LL	VR908 BIAS-R	
MM	VR907 SUB BRIGHT-B	
NN	VR906 SUB BRIGHT-G	
OO	VR905 SUB BRIGHT-R	
PP	TP901	
QQ	TP902	
RR	TP903	
B4	VIDEO/CRT PWB ASSY (PWE-249)	JC-1404HME-1/EE-1/ED-1
B4	VIDEO/CRT PWB ASSY (PWE-281)	JC-1404HMN

ADJUSTMENT PROCEDURE

Standard Adjustment Conditions

1) Power source voltage: AC220V, 240V 50 Hz/60 Hz
2) Aging: Adjust after leaving power on for a minimum twenty minutes.
3) Signals:

Video : Analog 0.7Vp-p 75Ω terminal positive polarity
Analog sync. on green
Video : 0.7Vp-p
Synchronizing . 0.3Vp-p
Synchronizing : TTL level Negative polarity/positive polarity
Separate/composite
Deflection frequency : H. 15.5kHz~38kHz
V. 50Hz~90Hz

1. SW. REG. UNIT

+85V LINE
Adjust VR651 to be 85V DC

2. Pre-adjustment of DEF PWB

Apply 23.5V DC between K3 and K4 (GND).

1) +18V adjustment
Adjust VR505 for 18V±0.05V DC between TP502 and the ground.
2) +12V adjustment
Apply a resistance load of 15Ω7W between X4 and X8 (GND).
Adjust VR503 for 12±0.05V DC between TP550 and the ground.
3) High voltage protector setting (For JC-1404HME-1/EE-1)
High voltage protector 1
With 25.8±0.1V DC applied between TP2001 and the ground, adjust VR2001 for 0.3±0.05V DC between TP2005 and the ground.
High voltage protector 2
With 24.5±0.1V DC applied between TP2003 and the ground, adjust VR2002 for 0.3±0.05V DC between TP2006 and the ground.
Due to DHHS, after adjusting VR2001 and VR2002, seal with an adhesive (TSE-385RTV) and cap (74004891).

3)' High voltage protector setting (For JC-1404HMED-1/N)
High voltage protector 1
With 25.6±0.1V DC applied between TP2001 and the ground, adjust VR2001 for 0.3±0.05V DC between TP2005 and the ground.
High voltage protector 2
With 26.1±0.1V DC applied between TP2003 and the ground, adjust VR2002 for 0.3±0.05V DC between TP2006 and the ground.
Due to DHHS, after adjusting VR2001 and VR2002, seal with an adhesive (TSE-385RTV) and cap (74004891).

3. Main Adjustment

Set the external VRs and switches as follows unless otherwise specified.
Front controls (as seen from front)

VR101 BRIGHTNESS : At point where back raster disappears.
VR102 CONTRAST : Max. (fully clockwise)
SW110 MODE SWITCH : Off (right side)
SW111 COLOR SWITCH : Auto (left end)

3-1) DEF PWB Adjustment

A) Analog Adjustment

(1) Horizontal Hold

a) Short TP501 and the ground.

b) Receive signal 1 (15kHz) and adjust horizontal hold (1) VR501 Sor that there is one screen.

c) Receive signal 2 (38kHz) and adjust horizontal hold (2) VR501 So that there is one screen.

d) Receive the signal 1 and confirm that there is nearly one screen. If not, re-perform b) and c).

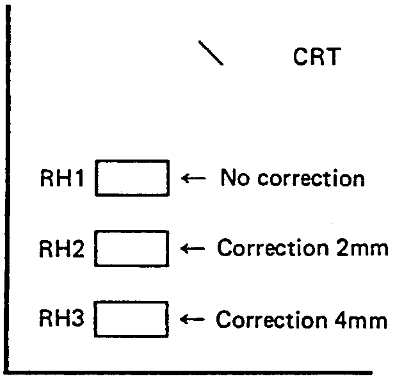
e) Remove the short between TP501 and the ground.

(2) High Voltage Adjustment

Recieve signal 8 (31.5kHz) and adjust high voltage adjustment VR504 so that the high voltage is 23.5kV with the CRT anode current cut off.
Due to DHHS, after adjusting, seal with an adhesive (TSE-385RTV) or cap (74004891).

(3) Horizontal Raster Centering

Receive signal 8 (31.5kHz) and check that the horizontal linearity is suitable. If it is extremely bad, adjust to a suitable point with L504 (H. LIN. COIL).
Turn the brightness control fully clockwise so that back raster appears, then reinsert connector RH so that the back raster is in the center of the CRT screen.



For horizontal correction, set with the direction of the connector.

(4) Side Pin Cushion

Receive signal 8 (31.5kHz) and adjust VR402 for the optimum side pin cushion distortion.
Adjust so that pin distortion is zero (straight) at one side or both sides.

(5) Vertical Linearity

Receive signal 8 (70Hz) and adjust VR403 for the optimum vertical linearity.

(6) Horizontal Linearity

Receive Signal 5 (22.0kHz) and adjust L504 for the optimum horizontal linearity.
(Reference: Optimum is that the magnet is turned about 45° clockwise or counterclockwise.)

(7) Horizontal Width

a) Short TP151 and TP152.

b) Receive signal 8 (31.5kHz) and adjust width coil L503 for a horizontal screen size of 240±2mm.

NOTE: Do not touch the Horizontal Size Control Switch of the front panel until Horizontal Width Coil Adjustment is finished. Because the microcomputer's output voltage for the Horizontal width adjustment will change once the test pins have been shorted.
Adjust after that video area is nearly center of the raster with Horizontal Position Switch and Vertical amplitude is less than over scan (about 18mm) with Vertical Size Switch.
If Horizontal Size Control Switch is pushed by mistake, turn off the power switch and re-adjust.

B) Digital Memory Adjustment

Confirm that the adjustments as shown below are finished before performing this adjustment.

1. High Voltage Adjustment
2. Width Coil Adjustment
3. Horizontal Raster Centering Adjustment

4. Horizontal Hold Adjustment
5. Horizontal Linearity Adjustment
6. Side Pin Adjustment

This adjustment is user control to adjust with the signal 3~12.
This condition is memorized and the signal pattern is reversed cross hatch.

(1) Setting
BRIGHT VR : Max
CONTRAST VR : Min

(2) Procedure of adjustment
1 Short TP151 and TP152.

2 Receive Signal 3 (CGA).
3 Adjust so that the screen is in the center of the back raster with User Control Horizon Position Switch.
4 Adjust so that the horizontal screen size is 240mm±2mm with User Control Horizontal Si Switch.
5 Adjust so that vertical position of the screen is in the center of CRT with User Control Verti Position Switch.
6 Adjust so that the vertical screen size is 180mm±2mm with User Control Vertical Size Switc
7 Push the Memory Recall Switch. (over 0.5 sec.)

8 Receive Signal 4 (MDA).
9 Turn on the Mode Switch.
10 Perform the shown above 3~7.

11 Turn off the Mode Switch.
12 Receive Signal 5 (EGA).
13 Perform the shown above 3~7.

14 In the same way, perform the shown above 3~7 with signal 6~12.
However, adjust so that the horizontal screen size is 250mm±2mm and the vertical screen si is 187mm±2mm with signal 10 (8514A).

15 Remove the test pin short after confirm that the adjustments with signal 3~12 are finished.
16 Confirm by watching that the screen size position is correct on the all mode.
If not, re-adjust on the mode only and re-confirm on the all mode.

3-2) VIDEO CRT PWB (Adjustment of Video Amplitude and White Balance)

NOTE: Check that the video signals are as shown below before performing the main adjustment. In particular, for LVG-1603, the video signal output level varies according to the signal pattern, so check the level with the signal to be adjusted.

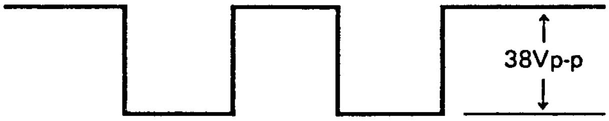
Video : Analog 0.7Vp-p
Synchronizing : H.V Separate TTL level

(1) Initial Setting of Adjustment VRs
VR901~903 GAIN VR : Fully counterclockwise (MIN)
VR904 SUB CONT. VR : Fully clockwise (MAX)
VR906, 908, 910 BIAS VR : Fully clockwise (cathode voltage rising
VR905, 907, 909 SUB BRIGHT VR : Mechanical Center
SCREEN VR : Fully counterclockwise (MIN)

(2) Video Contrast Adjustment (Window pattern)
a) GAIN VR adjustment
1 Receive the window pattern (the video area of 1/3~1/2H x 1/2V in which there is no ABL even with contrast at maximum is preferable) (Signal 12)

2 Contrast control : Fully clockwise
Brightness control : Fully counterclockwise

3 Adjust VR901, VR902 and VR903 so that the output voltage is 38Vp-p.
After Adjusting, check the Vp-p again and readjust if they do not confirm to the settings.



b) SUB CONT. VR adjustment

1 Contrast control : Fully counterclockwise
Brightness control : Fully counterclockwise

2 Adjust VR904 so that TP902 (GREEN OUT) output is 10Vp-p.
After adjusting, check that TP901 (RED OUT) and TP903 (BLUE OUT) outputs are 10Vp-p ±0.5Vp-p.
If not, fine-adjust VR904 so that the R, G and B outputs are within the range of 10Vp-p ±0.5Vp-p.

(3) Cut-off Adjustment (All Black Signal)
Contrast control : Fully counterclockwise
Brightness control : Fully counterclockwise

a) 1 Short TP551 and the ground. (chassis)
2 Short TP401 and the ground. (chassis)
3 As the screen VR is turned gradually clockwise, a single color will appear as a horizontal line. This color is the reference color for the cut-off adjustment.

b) Turn the bias VRs for the other color than the reference color until bright as the reference color.

c) 1 Remove the short between TP401 and the ground. (chassis)
Otherwise, replace VR401 original position (voltage of pin 4 IC501 is 6V±0.1V).
2 Remove the short between TP551 and the ground. (chassis)

NOTE: Perform the cut-off adjustment in as dark a place as possible to make the white tracking which follows better.

(4) SUB BRIGHT VR Adjustment

a) Receive signal 8 (All black signal).
Contrast control : Fully counterclockwise
Brightness control : Fully clockwise, so that there is only back raster on the screen.

b) Turn SUB BRIGHT VR for the other color than the reference color of (3) Cut-off Adjustment and adjust so that back raster become to be white.

(5) Fine Adjustment of White Balance
Color temperature: Center X = 0.310
Y = 0.325
The color should be white with a slightly blue tinge.

a) Receive signal 8 (VGA 400 lines) H. gray scale (16 gradations).

b) Contrast control : Fully counterclockwise
Brightness control : Fully clockwise
Check that the white balance is proper for all gradations.
If not, fine adjust to make it white with SUB BRIGHT VR for the other color than the reference color.

c) Contrast control : Fully clockwise
Brightness control : At a point where no back raster appears
Check that the white balance is proper for all gradations.
If not, fine adjust to make it white with GAIN VR for the other color than the reference color.

(6) Focus Adjustment

a) Receive signal 12 (all white "%" or 4-dots missing signal)
Contrast control : Fully clockwise
Brightness control : At a point where no back raster appears

b) Turn the focus control and adjust for the optimum focus.

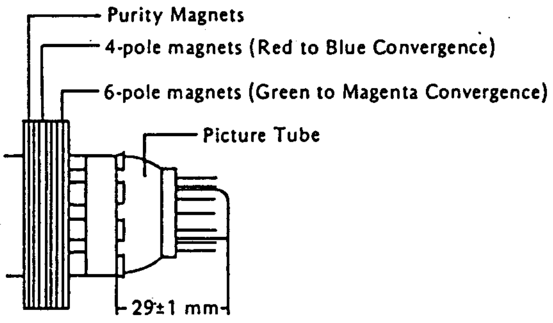
(7) Purity Adjustment

a) Be sure that the display is not being exposed to any external magnetic fields.

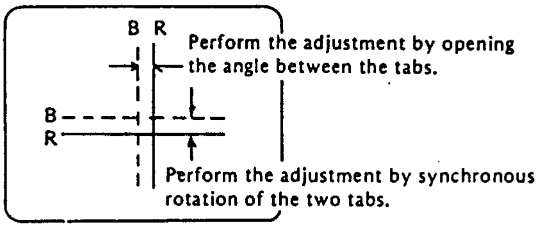
b) Ensure that the spacing between the Purity, Convergence Magnet, (PCM), assembly and the CRT stem is 29mm ±1mm. (See below diagram)

c) Produce a complete, red pattern on the display. Adjust the Purity magnet rings on the PCM assembly to obtain a complete field of the color red. This is done by moving the two tabs in such a angle between the two tabs, which should be approximately 180°.

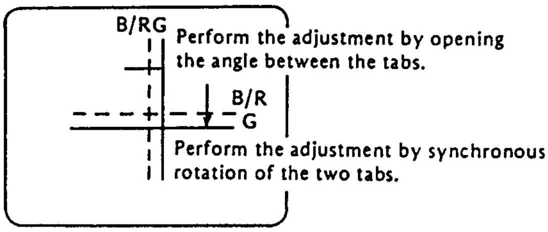
d) Check the complete blue and complete green patterns to observe their respective color purity. Make minor adjustment if needed.


Purity Magnets
4-pole magnets (Red to Blue Convergence)
6-pole magnets (Green to Magenta Convergence)
Picture Tube
29±1 mm

Purity, Convergence Magnet Assembly (PCM)


B R
Perform the adjustment by opening the angle between the tabs.
B
R
Perform the adjustment by synchronous rotation of the two tabs.

Red to Blue Convergence
(Magenta)


B/RG
Perform the adjustment by opening the angle between the tabs.
B/R
G
Perform the adjustment by synchronous rotation of the two tabs.

Green to Magenta Convergence
(White)

(8) Convergence Adjustment

a) Produce a magenta crosshatch on the display.

b) Adjust the focus for the best overall focus on the display.
Also adjust the brightness to the desired condition.

c) Vertical red and blue lines are converged by varying the angle between the two tabs of the 4-pole magnets on the PCM assembly. (See above diagrams)

d) Horizontal red and blue lines are converged by varying the two tabs together, keeping the angle between them constant.

e) Produce a white crosshatch pattern on the display.

f) Vertical green and magenta lines are converged by varying the angle between the two tabs of the 6-pole magnets.

g) Horizontal green and magenta lines are converged by varying the two tabs together, keeping the angle between them constant.

TIMING OF REFERENCE SIGNALS

SIGNALS FOR USING LVG-1603

	Abbreviation	Unit	1	2	3	4	5	6	7	8	9	10	11	12
			15kHz	38kHz	CGA	MDA	EGA	PGC	VGA 350	VGA 400	VGA 480	8514A	MAC II	800 x 600
HORIZONTAL	Total	DOT	896	1024	896	882	744	824	900	900	900	1264	864	1024
	Rate	KHz	15.0000	38.0000	15.8500	18.4300	22.0000	30.4800	31.4700	31.4700	31.4700	35.5200	35.0000	35.1600
	Dots/Character	DOT	8	8	8	9	8	8	9	9	9	8	8	8
	Characters	CHR	80	100	80	80	80	80	80	80	80	128	80	100
	Drive Delay	DOT	736	824	736	729	640	640	738	738	738	1032	656	824
	Drive Width	DOT	56	72	56	135	80	48	108	108	108	176	64	72
VERTICAL	Total	RASTER	250	626	260	370	366	508	449	449	525	409	525	626
	Rate	Hz	60.0000	60.7000	60.9600	49.8100	60.1100	60.0000	70.0900	70.0900	59.9400	43.4800	66.6700	56.2400
	Lines/Character	RASTER	10	15	10	14	10	10	14	16	16	8	16	15
	Rows	RASTER	200	600	200	350	350	480	350	400	480	384	480	600
	Drive Delay	RASTER	228	601	225	350	351	481	387	412	490	384	483	601
	Drive Width	RASTER	2	2	3	15	13	2	2	2	2	4	3	2
	Dot Rate	MHz	13.4400	38.9120	14.2016	16.2553	16.3680	25.1155	28.3230	28.3230	28.3230	44.8973	30.2400	36.0038
	Scan Mode		0											
	Character Font		0											
	Character Code		48											
	Patten Key Code		–											
	Video Output		–											
	Add Sync/Inverse		0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0100	0000
	Dot Duty/Set		00	00	00	00	00	01	00	00	00	00	00	00
	Polarity		11	11	11	10	10	11	10	01	00	11	00	11

DATA FORMAT FOR USING Quantum 801C

TIMING PARAMETERS:

Real Time Parameters

Dot Rate	MHz
Horizontal Rate	KHz
Vertical Rate	Hz

Non-Real Time Parameters

Horizontal	Vertical
Dots/Character	Lines/Character
Total	Total
Characters	Rows
Drive Delay	Drive Delay
Drive Width	Drive Width
	Step Width

OPTION PARAMETERS

Signal Gating

Composit Sync.	OP 1.—0=off	1=on
Vertical Step	OP 2.—0=off	1=on
Horizontal Drive	OP 3.—0=off	1=on
Vertical Drive	OP 4.—0=off	1=on

Signal Polarity

Composite Sync.	OP 5.—0=non-inverted 1=inverted
Vertical Step	OP 6.—0=non-inverted 1=inverted
Horizontal Drive	OP 7.—0=non-inverted 1=inverted
Vertical Drive	OP 8.—0=non-inverted 1=inverted
Video	OP 13.—0=non-inverted/positive 1=inverted/positive 2=non-inverted/negative 3=inverted/negative

Interlace Mode	OP 9.—0=non-interlace 1=interlaced sync only 3=interlaced sync & video
Video Mode	OP 10.—0=monochrome 1=color
Duty Cycle	OP 11.—0=50% 1=100% (OP 12.0) 0 or 1=100% (OP 12.2)
Character Clocking Mode	OP 12.—0=single-phase 2=dual-phase
Horizontal Skew	OP 14.—skew right 0-3 dots
Vertical Skew	OP 15.—skew down 0-9 lines
Cursor	OP 16.—0=off 1=fast blink 2=slow blink 3=on continuous

SIGNALS for using QUANTUM 801C

	1	2	3	4	5	6	7	8	9	10	11	12
Real Time Parameters		*								*		*
Dot Rate (MHz)	13.440	29.184	14.202	16.255	16.368	25.116	28.324	28.324	28.324	22.449	30.246	27.003
Horizontal Rate (kHz)	15.000	38.000	15.850	18.430	22.000	30.480	31.470	31.470	31.470	35.520	35.000	35.160
Vertical Rate (Hz)	60.000	60.700	60.960	49.810	60.110	60.000	70.000	70.000	59.943	86.960	66.667	56.000
Non-Real Time Parmeters												
H: Dots/Character	8	6	8	9	8	8	9	9	9	8	8	6
Total	112	128	112	98	93	103	100	100	100	79	108	128
Characters	80	100	80	80	80	80	80	80	80	64	80	100
Drive Delay	92	103	92	81	80	80	82	82	82	64	88	103
Drive Width	7	9	7	15	10	6	12	12	12	11	8	9
V: Lines/Character	10	15	10	14	10	10	14	16	16	16	16	15
Total	250	626	326	370	366	508	449	449	525	409	525	626
Rows	20	40	20	25	35	48	25	25	30	24	48	40
Drive Delay	22	40	22	25	35	48	28	26	31	24	48	40
Drive Width	2	2	3	15	13	2	2	2	2	4	3	2
Step Width	—	—	—	—	—	—	—	—	—	—	—	—
Signal Gating												
Composite Sync	0	0	0	0	0	1	0	0	0	0	1	0
Vertical Step	0	0	0	0	0	0	0	0	0	0	0	0
Horizontal Drive	1	1	1	1	1	0	1	1	1	1	0	1
Vertical Drive	1	1	1	1	1	0	1	1	1	1	0	1
Signal Polarity												
Composite Sync	0 P					0 P					1 N	
Vertical Step	—											
Horizontal Drive	0 P	0 P	0 P	0 P	0 P	—	0 P	1 N	1 N	0 P	1 N	0 P
Vertical Drive	0 P	0 P	0 P	1 N	1 N	—	1 N	0 P	1 N	0 P	1 N	0 P
Video	0											
Interlace Mode	0											
Video Mode	1											
Duty Cycle	0											
Character Clocking Mode	0											
Horizontal Skew	—											
Vertical Skew	—											
Cursor	—											
	15kHz	38kHz	CGA	MDA	EGA	PGC	VGA 350	VGA 400	VGA 480	8514A	MacII	800 x 600

NOTE: "*" marked signals put down the dot rate. Because, the dot rate may not exceed 32.76 MHz while in the color mode (0 P 10.1) or the signal-phase character clocking mode (0 P 12.0)

TROUBLE SHOOTING

Before using this chart, please refer to the trouble shooting in the user's manual.

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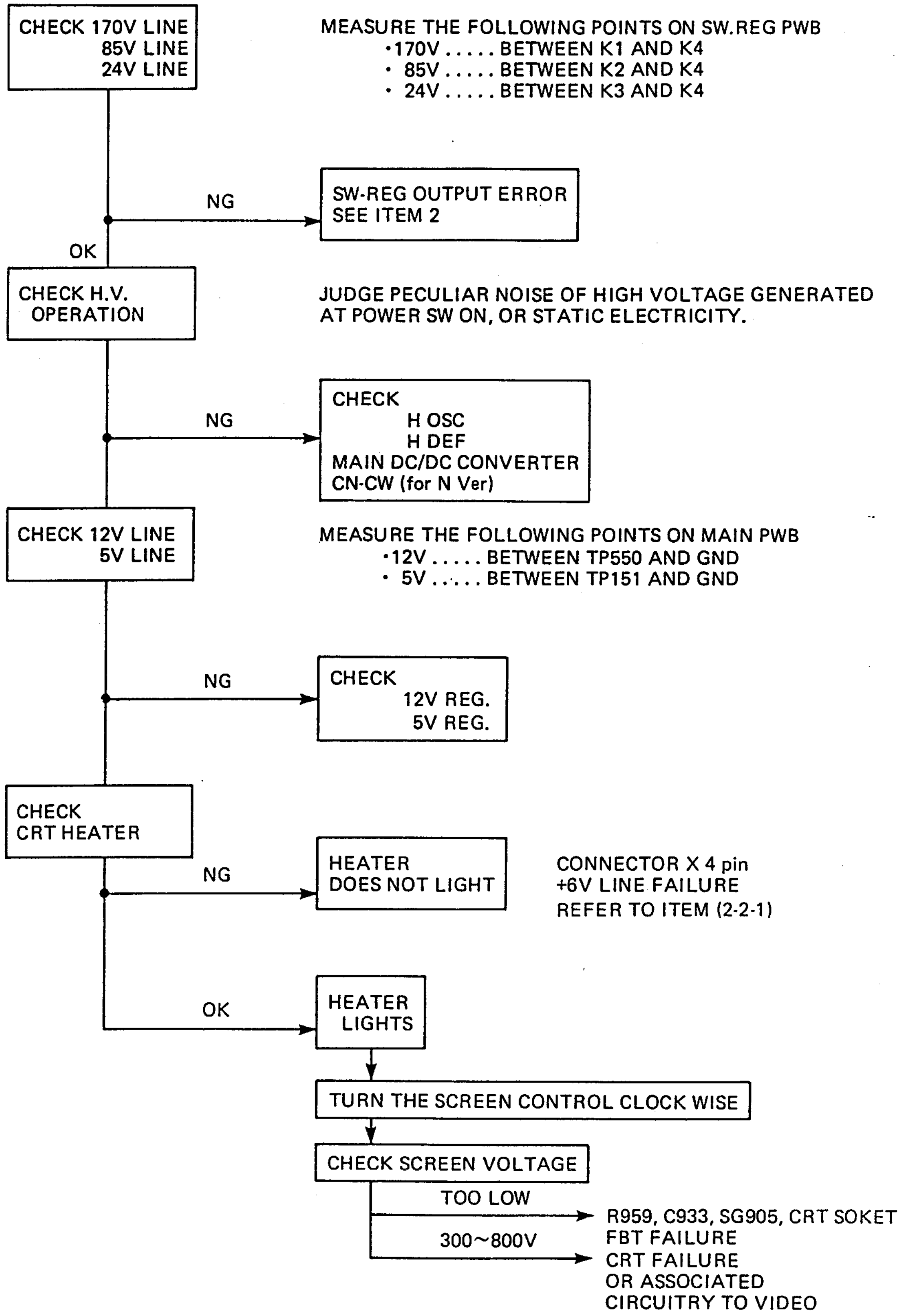
   (5-7) SIDE PIN CUSHION DISTORTION FAILURE
   (5-8) POOR FOCUS
   (5-9) IMPURITY ON CRT SCREEN

1. NO RASTER


CHECK 170V LINE
85V LINE
24V LINE
NG
SW-REG OUTPUT ERROR
SEE ITEM 2
OK
CHECK H.V.
OPERATION
NG
CHECK
H OSC
H DEF
MAIN DC/DC CONVERTER
CN-CW (for N Ver)
CHECK 12V LINE
5V LINE
NG
CHECK
12V REG.
5V REG.
CHECK
CRT HEATER
NG
HEATER
DOES NOT LIGHT
OK
HEATER
LIGHTS
TURN THE SCREEN CONTROL CLOCK WISE
CHECK SCREEN VOLTAGE
TOO LOW
R959, C933, SG905, CRT SOKET
300~800V
FBT FAILURE
CRT FAILURE
OR ASSOCIATED
CIRCUITRY TO VIDEO

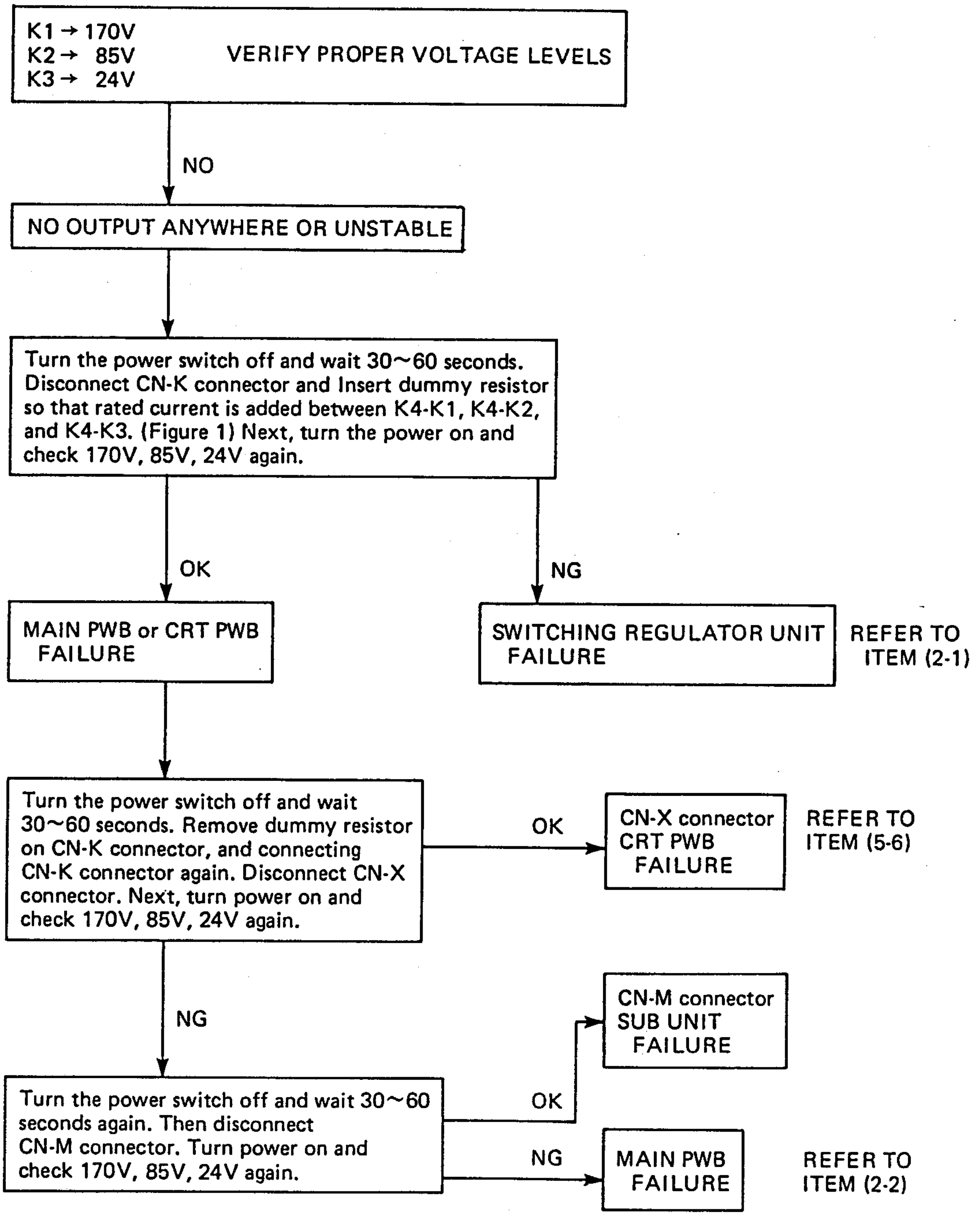
MEASURE THE FOLLOWING POINTS ON SW.REG PWB
- 170V ..... BETWEEN K1 AND K4
- 85V ..... BETWEEN K2 AND K4
- 24V ..... BETWEEN K3 AND K4

JUDGE PECULIAR NOISE OF HIGH VOLTAGE GENERATED AT POWER SW ON, OR STATIC ELECTRICITY.

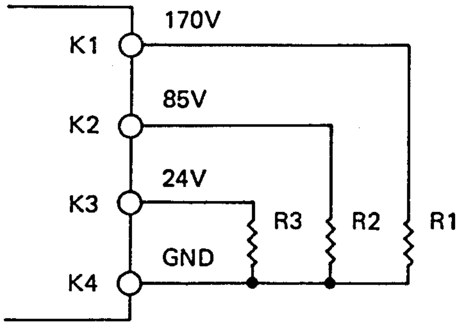
MEASURE THE FOLLOWING POINTS ON MAIN PWB
- 12V ..... BETWEEN TP550 AND GND
- 5V ..... BETWEEN TP151 AND GND

CONNECTOR X 4 pin
+6V LINE FAILURE
REFER TO ITEM (2-2-1)

2. SWITCHING REGULATOR UNIT OUTPUT ERROR

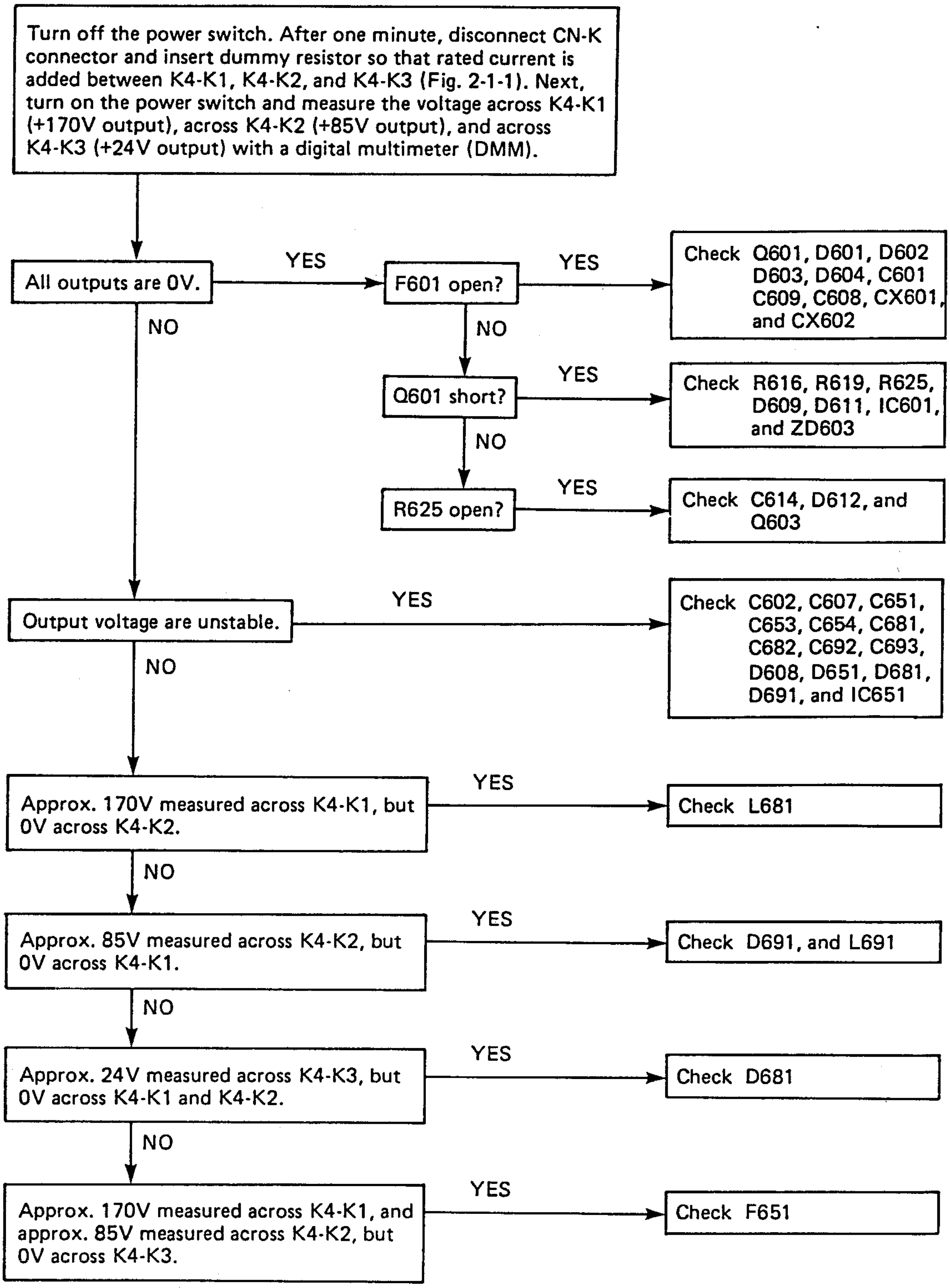

K1 → 170V
K2 → 85V
K3 → 24V
VERIFY PROPER VOLTAGE LEVELS
NO
NO OUTPUT ANYWHERE OR UNSTABLE
Turn the power switch off and wait 30~60 seconds. Disconnect CN-K connector and Insert dummy resistor so that rated current is added between K4-K1, K4-K2, and K4-K3. (Figure 1) Next, turn the power on and check 170V, 85V, 24V again.
OK
NG
MAIN PWB or CRT PWB FAILURE
SWITCHING REGULATOR UNIT FAILURE
REFER TO ITEM (2-1)
Turn the power switch off and wait 30~60 seconds. Remove dummy resistor on CN-K connector, and connecting CN-K connector again. Disconnect CN-X connector. Next, turn power on and check 170V, 85V, 24V again.
OK
CN-X connector CRT PWB FAILURE
REFER TO ITEM (5-6)
NG
CN-M connector SUB UNIT FAILURE
Turn the power switch off and wait 30~60 seconds again. Then disconnect CN-M connector. Turn power on and check 170V, 85V, 24V again.
OK
NG
MAIN PWB FAILURE
REFER TO ITEM (2-2)

(Figure 1) Rated load current at K1, K2, K3


170V
K1
85V
K2
24V
K3
GND
K4
R3
R2
R1

170V	65~290mA (2.6kΩ~586.2Ω)
85V	35~230mA (2.4kΩ~369.5Ω)
24V	0.5~1.0A (48~24Ω)

(2-1) THE SWITCHING REGULATOR UNIT FAILURE (for JC-1404HME-1/EE-1/ED-1)



Turn off the power switch. After one minute, disconnect CN-K connector and insert dummy resistor so that rated current is added between K4-K1, K4-K2, and K4-K3 (Fig. 2-1-1). Next, turn on the power switch and measure the voltage across K4-K1 (+170V output), across K4-K2 (+85V output), and across K4-K3 (+24V output) with a digital multimeter (DMM).

All outputs are 0V.

F601 open?

Check Q601, D601, D602 D603, D604, C601 C609, C608, CX601, and CX602

Q601 short?

Check R616, R619, R625, D609, D611, IC601, and ZD603

R625 open?

Check C614, D612, and Q603

Output voltage are unstable.

Check C602, C607, C651, C653, C654, C681, C682, C692, C693, D608, D651, D681, D691, and IC651

Approx. 170V measured across K4-K1, but 0V across K4-K2.

Check L681

Approx. 85V measured across K4-K2, but 0V across K4-K1.

Check D691, and L691

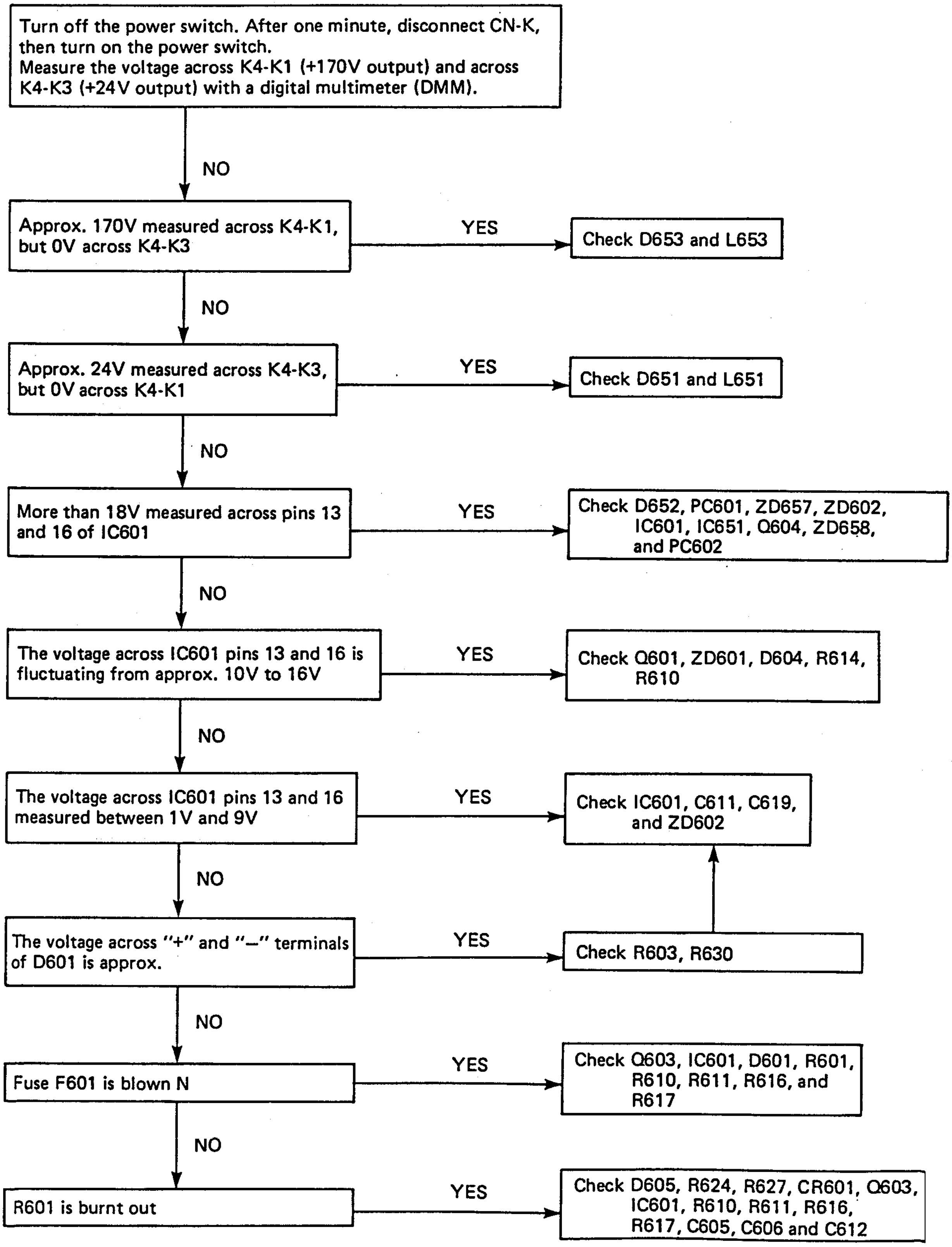
Approx. 24V measured across K4-K3, but 0V across K4-K1 and K4-K2.

Check D681

Approx. 170V measured across K4-K1, and approx. 85V measured across K4-K2, but 0V across K4-K3.

Check F651

(2-1)' THE SWITCHING REGULATOR UNIT FAILURE (for JC-1404HMN)



Turn off the power switch. After one minute, disconnect CN-K, then turn on the power switch.
Measure the voltage across K4-K1 (+170V output) and across K4-K3 (+24V output) with a digital multimeter (DMM).

Approx. 170V measured across K4-K1, but 0V across K4-K3

Check D653 and L653

Approx. 24V measured across K4-K3, but 0V across K4-K1

Check D651 and L651

More than 18V measured across pins 13 and 16 of IC601

Check D652, PC601, ZD657, ZD602, IC601, IC651, Q604, ZD658, and PC602

The voltage across IC601 pins 13 and 16 is fluctuating from approx. 10V to 16V

Check Q601, ZD601, D604, R614, R610

The voltage across IC601 pins 13 and 16 measured between 1V and 9V

Check IC601, C611, C619, and ZD602

The voltage across "+" and "–" terminals of D601 is approx.

Check R603, R630

Fuse F601 is blown N

Check Q603, IC601, D601, R601, R610, R611, R616, and R617

R601 is burnt out

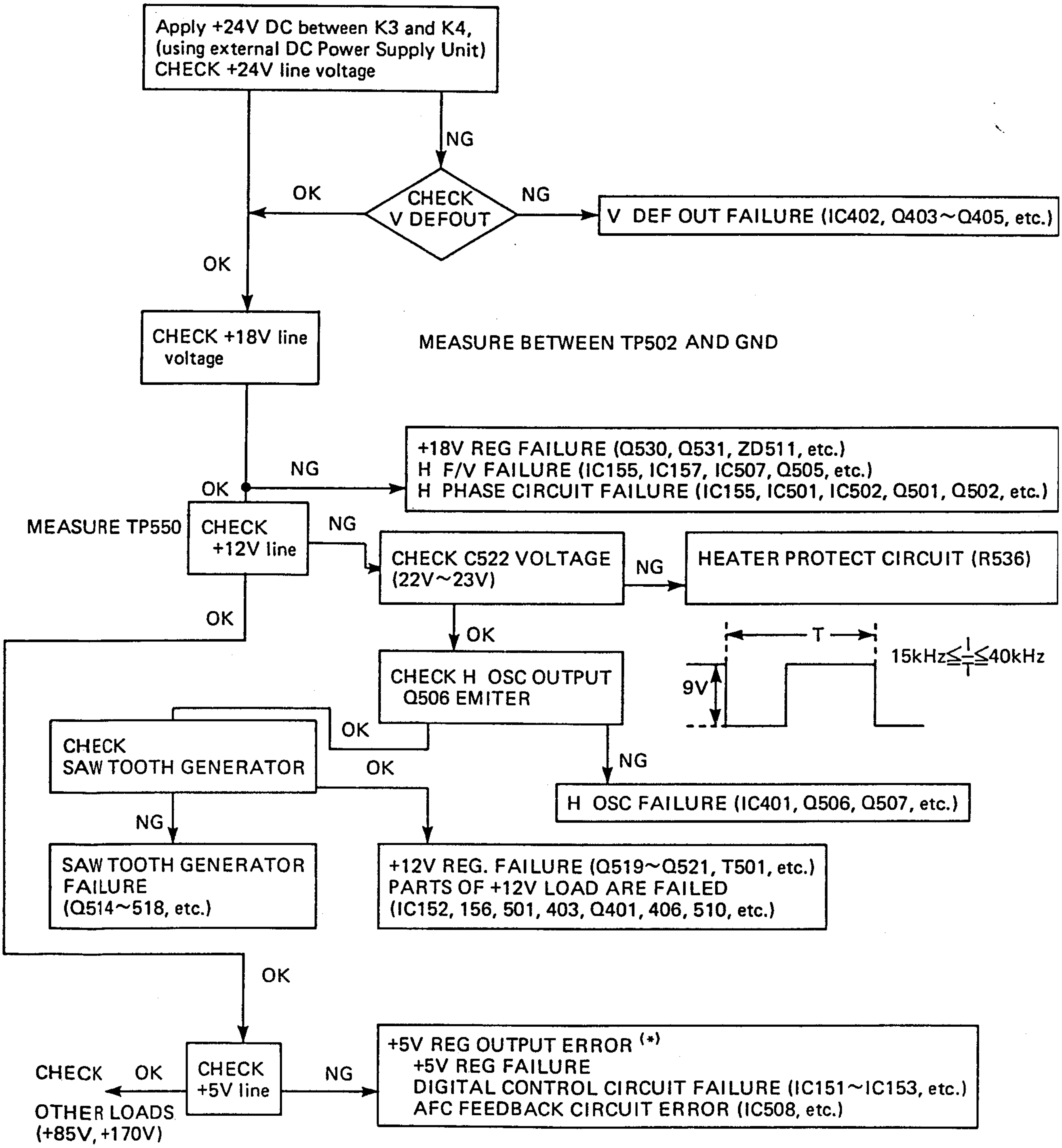
Check D605, R624, R627, CR601, Q603, IC601, R610, R611, R616, R617, C605, C606 and C612

(2-2) MAIN PWB +B line FAILURE

Remove MAIN PWB from chassis·then
You should check following +B line loads.

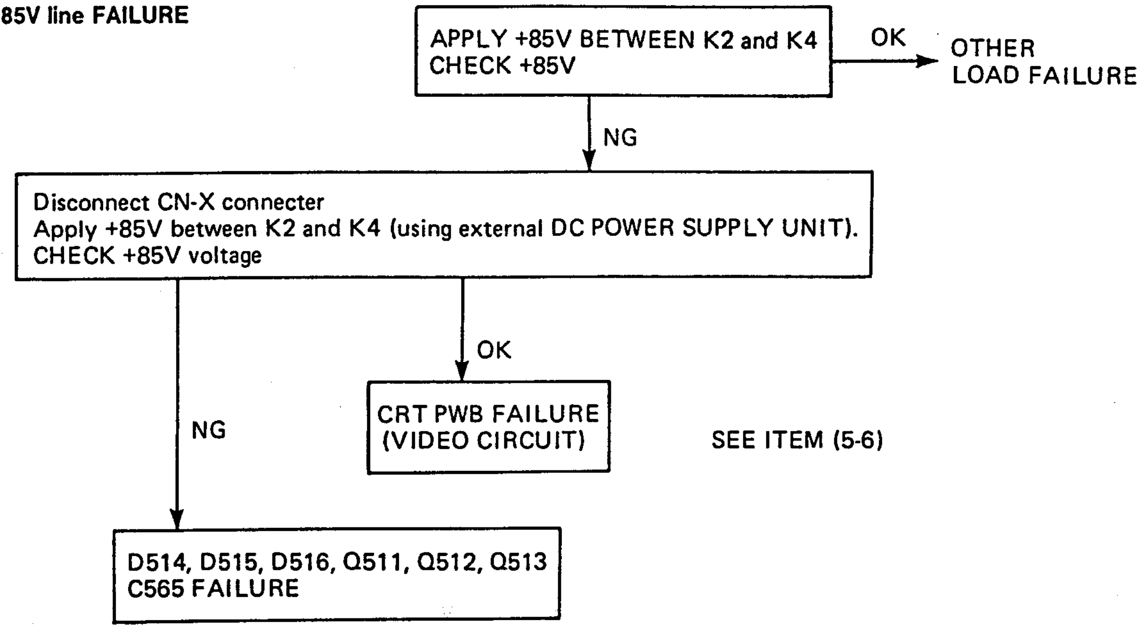
(2-2-1) +24V line load
(2-2-2) +85V line load
(2-2-3) +170V line load

(2-2-1) +24V line FAILURE

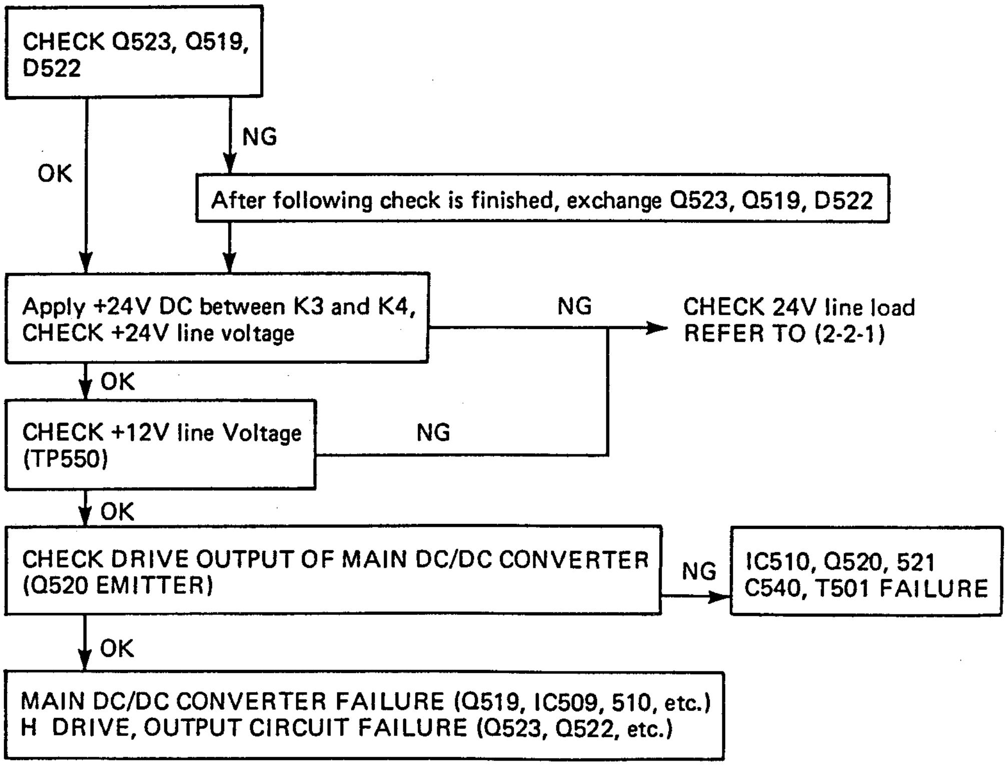

Apply +24V DC between K3 and K4, (using external DC Power Supply Unit) CHECK +24V line voltage
NG
OK
CHECK V DEFOUT
NG
V DEF OUT FAILURE (IC402, Q403~Q405, etc.)
OK
CHECK +18V line voltage
MEASURE BETWEEN TP502 AND GND
NG
OK
+18V REG FAILURE (Q530, Q531, ZD511, etc.)
H F/V FAILURE (IC155, IC157, IC507, Q505, etc.)
H PHASE CIRCUIT FAILURE (IC155, IC501, IC502, Q501, Q502, etc.)
MEASURE TP550
CHECK +12V line
NG
CHECK C522 VOLTAGE (22V~23V)
NG
HEATER PROTECT CIRCUIT (R536)
OK
OK
T
15kHz≦1/T≦40kHz
9V
CHECK H OSC OUTPUT Q506 EMITER
OK
CHECK SAW TOOTH GENERATOR
OK
NG
H OSC FAILURE (IC401, Q506, Q507, etc.)
NG
SAW TOOTH GENERATOR FAILURE (Q514~518, etc.)
+12V REG. FAILURE (Q519~Q521, T501, etc.)
PARTS OF +12V LOAD ARE FAILED
(IC152, 156, 501, 403, Q401, 406, 510, etc.)
OK
CHECK OTHER LOADS (+85V, +170V)
OK
CHECK +5V line
NG
+5V REG OUTPUT ERROR (*)
+5V REG FAILURE
DIGITAL CONTROL CIRCUIT FAILURE (IC151~IC153, etc.)
AFC FEEDBACK CIRCUIT ERROR (IC508, etc.)

(*) If short mode at +5V line has occered, you must check Impeadance of R567. (8.2Ω 3W)

(2-2-2) +85V line FAILURE

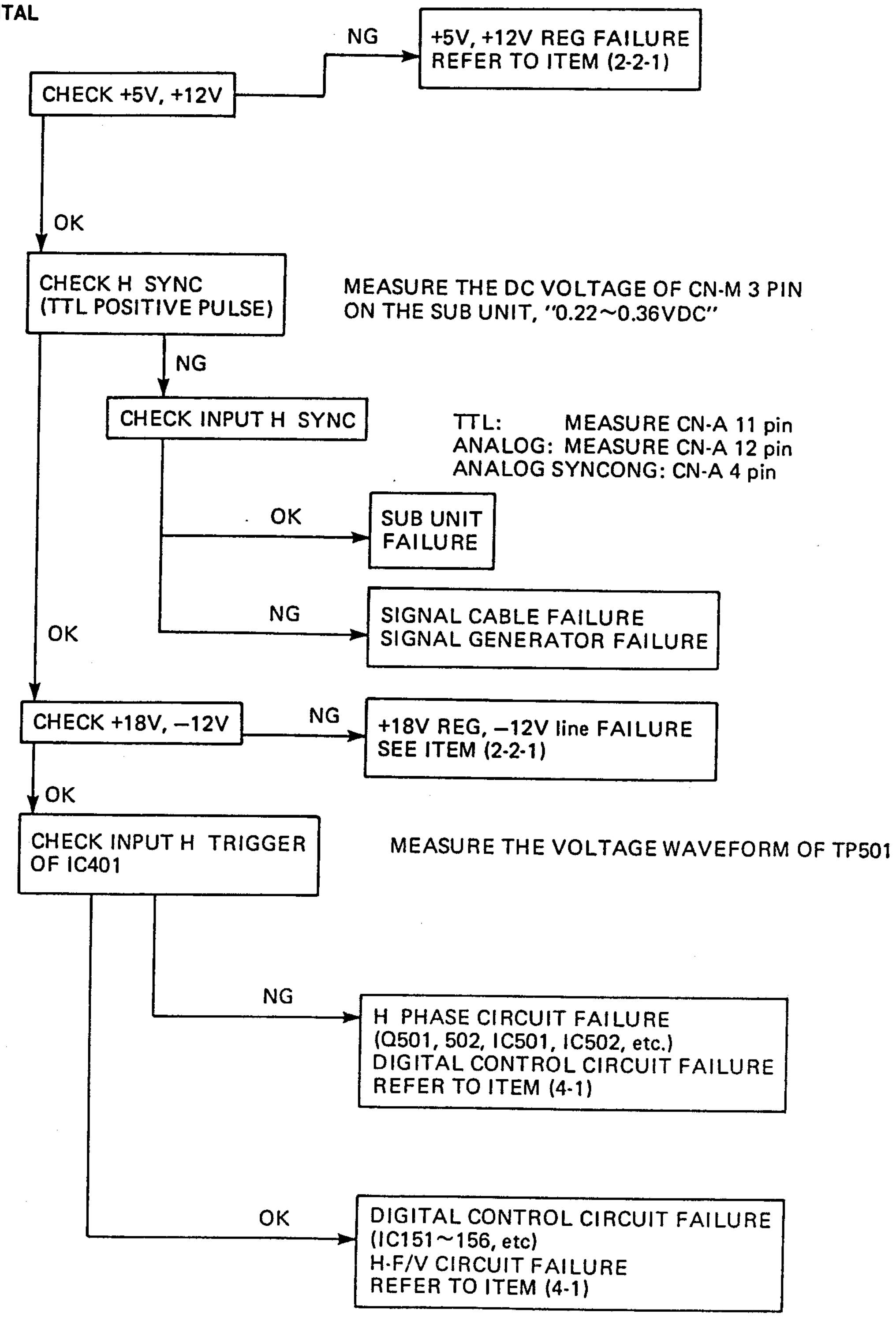

APPLY +85V BETWEEN K2 and K4
CHECK +85V
OK
OTHER LOAD FAILURE
NG
Disconnect CN-X connecter
Apply +85V between K2 and K4 (using external DC POWER SUPPLY UNIT).
CHECK +85V voltage
OK
NG
CRT PWB FAILURE (VIDEO CIRCUIT)
SEE ITEM (5-6)
D514, D515, D516, Q511, Q512, Q513
C565 FAILURE

(2-2-3) +170V line FAILURE


CHECK Q523, Q519, D522
OK
NG
After following check is finished, exchange Q523, Q519, D522
Apply +24V DC between K3 and K4, CHECK +24V line voltage
NG
CHECK 24V line load
REFER TO (2-2-1)
OK
CHECK +12V line Voltage (TP550)
NG
OK
CHECK DRIVE OUTPUT OF MAIN DC/DC CONVERTER (Q520 EMITTER)
NG
IC510, Q520, 521
C540, T501 FAILURE
OK
MAIN DC/DC CONVERTER FAILURE (Q519, IC509, 510, etc.)
H DRIVE, OUTPUT CIRCUIT FAILURE (Q523, Q522, etc.)

3. LACK OF STABLE SYNCHRONIZATION

(3-1) HORIZONTAL

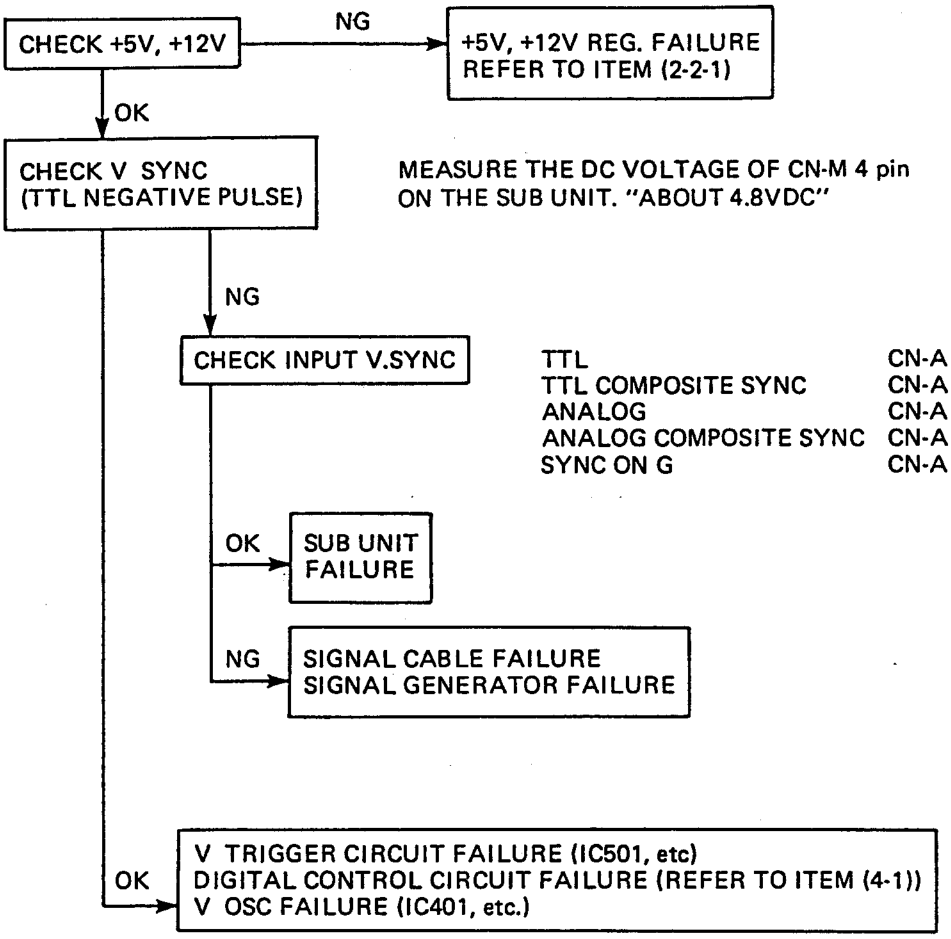

CHECK +5V, +12V
NG
+5V, +12V REG FAILURE
REFER TO ITEM (2-2-1)
OK
CHECK H SYNC
(TTL POSITIVE PULSE)
NG
CHECK INPUT H SYNC
OK
SUB UNIT
FAILURE
NG
SIGNAL CABLE FAILURE
SIGNAL GENERATOR FAILURE
OK
CHECK +18V, –12V
NG
+18V REG, –12V line FAILURE
SEE ITEM (2-2-1)
OK
CHECK INPUT H TRIGGER
OF IC401
NG
H PHASE CIRCUIT FAILURE
(Q501, 502, IC501, IC502, etc.)
DIGITAL CONTROL CIRCUIT FAILURE
REFER TO ITEM (4-1)
OK
DIGITAL CONTROL CIRCUIT FAILURE
(IC151~156, etc)
H-F/V CIRCUIT FAILURE
REFER TO ITEM (4-1)

MEASURE THE DC VOLTAGE OF CN-M 3 PIN
ON THE SUB UNIT, "0.22~0.36VDC"

TTL: MEASURE CN-A 11 pin
ANALOG: MEASURE CN-A 12 pin
ANALOG SYNCONG: CN-A 4 pin

MEASURE THE VOLTAGE WAVEFORM OF TP501

(3-2) VERTICAL

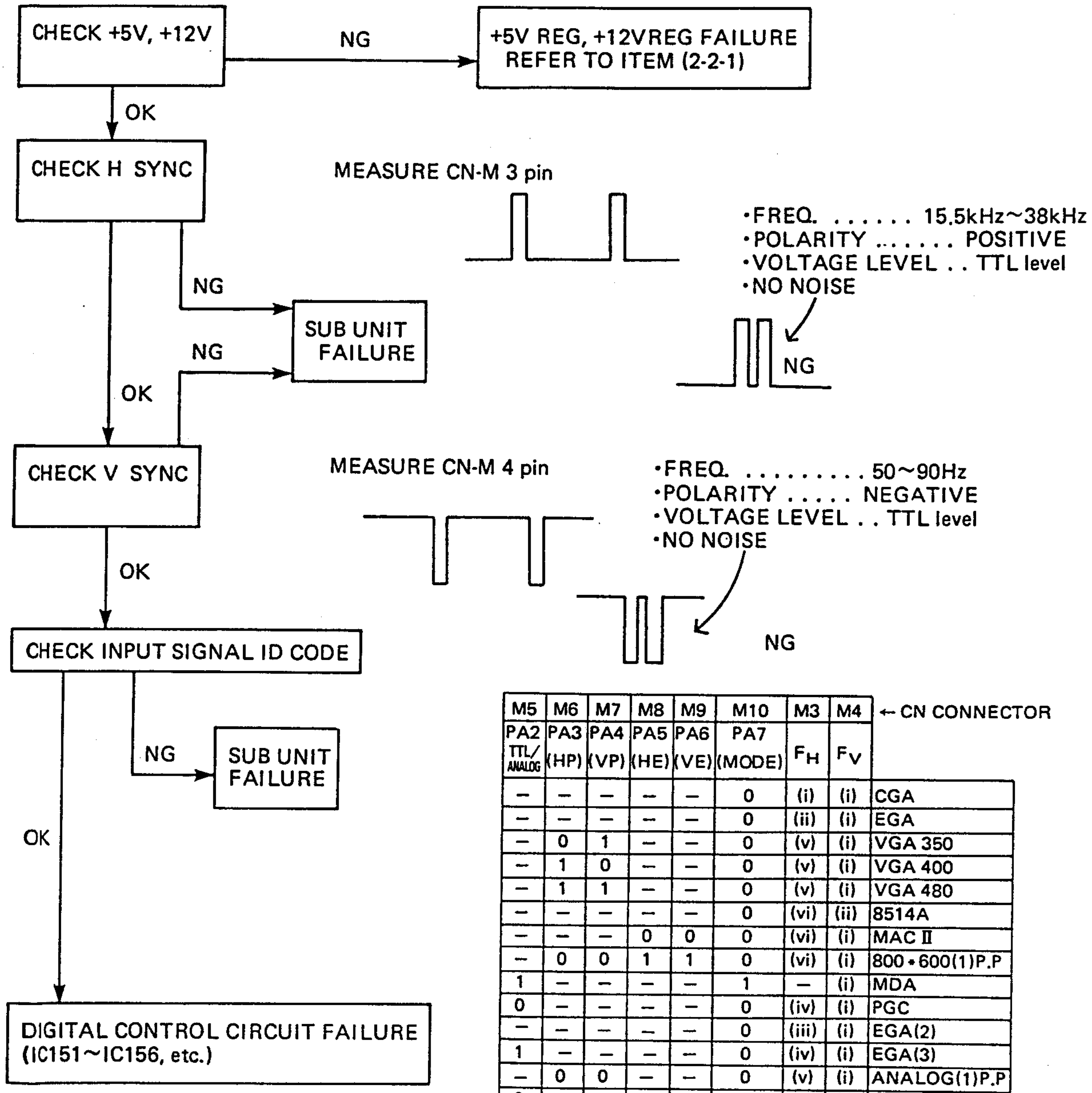

CHECK +5V, +12V
NG
+5V, +12V REG. FAILURE
REFER TO ITEM (2-2-1)
OK
CHECK V SYNC
(TTL NEGATIVE PULSE)
NG
CHECK INPUT V.SYNC
OK
SUB UNIT
FAILURE
NG
SIGNAL CABLE FAILURE
SIGNAL GENERATOR FAILURE
OK
V TRIGGER CIRCUIT FAILURE (IC501, etc)
DIGITAL CONTROL CIRCUIT FAILURE (REFER TO ITEM (4-1))
V OSC FAILURE (IC401, etc.)

MEASURE THE DC VOLTAGE OF CN-M 4 pin
ON THE SUB UNIT. "ABOUT 4.8VDC"

TTL	CN-A	pin 9
TTL COMPOSITE SYNC	CN-A	pin 11
ANALOG	CN-A	pin 13
ANALOG COMPOSITE SYNC	CN-A	pin 12
SYNC ON G	CN-A	pin 4

4. DIGITAL CONTROL ERROR

(4-1) DIGITAL CONTROL ERROR

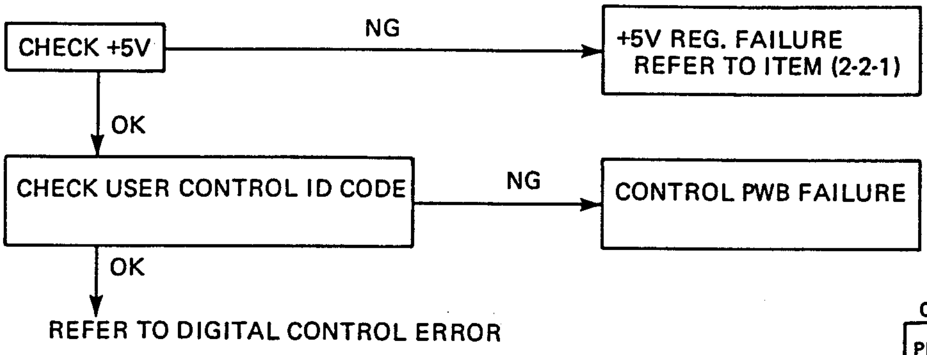

CHECK +5V, +12V
NG
+5V REG, +12VREG FAILURE
REFER TO ITEM (2-2-1)
OK
CHECK H SYNC
MEASURE CN-M 3 pin
•FREQ. . . . . . . 15.5kHz~38kHz
•POLARITY . . . . POSITIVE
•VOLTAGE LEVEL . . TTL level
•NO NOISE
NG
NG
SUB UNIT FAILURE
NG
OK
CHECK V SYNC
MEASURE CN-M 4 pin
•FREQ. . . . . 50~90Hz
•POLARITY . . . . . NEGATIVE
•VOLTAGE LEVEL . . TTL level
•NO NOISE
NG
OK
CHECK INPUT SIGNAL ID CODE
NG
SUB UNIT FAILURE
OK
DIGITAL CONTROL CIRCUIT FAILURE
(IC151~IC156, etc.)

M5	M6	M7	M8	M9	M10	M3	M4	← CN CONNECTOR
PA2 TTL/ ANALOG	PA3 (HP)	PA4 (VP)	PA5 (HE)	PA6 (VE)	PA7 (MODE)	F_H	F_V	
–	–	–	–	–	0	(i)	(i)	CGA
–	–	–	–	–	0	(ii)	(i)	EGA
–	0	1	–	–	0	(v)	(i)	VGA 350
–	1	0	–	–	0	(v)	(i)	VGA 400
–	1	1	–	–	0	(v)	(i)	VGA 480
–	–	–	–	–	0	(vi)	(ii)	8514A
–	–	–	0	0	0	(vi)	(i)	MAC II
–	0	0	1	1	0	(vi)	(i)	800 • 600(1)P.P
1	–	–	–	–	1	–	(i)	MDA
0	–	–	–	–	0	(iv)	(i)	PGC
–	–	–	–	–	0	(iii)	(i)	EGA(2)
1	–	–	–	–	0	(iv)	(i)	EGA(3)
–	0	0	–	–	0	(v)	(i)	ANALOG(1)P.P
0	–	–	–	–	1	–	(i)	USER
–	0	1	1	1	0	(vi)	(i)	800 • 600(2)
–	1	0	1	1	0	(vi)	(i)	800 • 600(3)
–	1	1	1	1	0	(vi)	(i)	800 • 600(4)

F_H
(i) 15.5kHz~21kHz
(ii) 21kHz~23kHz
(iii) 23kHz~27.5kHz
(iv) 27.5kHz~31kHz
(v) 31kHz~33kHz
(vi) 33kHz~38kHz

F_V
(i) 50Hz~75Hz
(ii) 75Hz~90Hz

(4-2) USER CONTROL ERROR

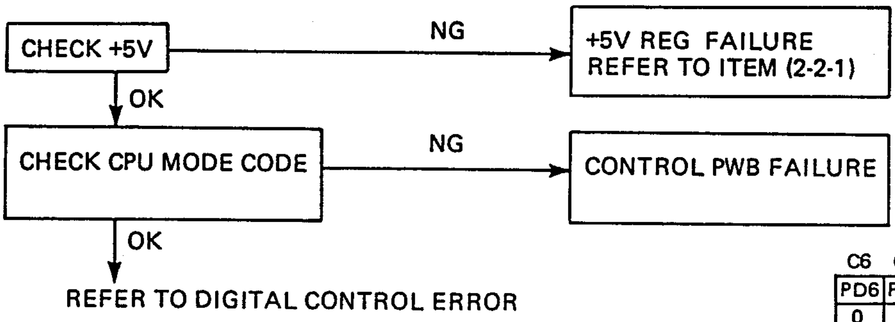

CHECK +5V
NG
+5V REG. FAILURE REFER TO ITEM (2-2-1)
OK
CHECK USER CONTROL ID CODE
NG
CONTROL PWB FAILURE
OK
REFER TO DIGITAL CONTROL ERROR

C1	C2	C3	
PD0 (CS0)	PD1 (CS1)	PD2 (CS2)	
0	0	0	–
0	0	1	BRIGHT
0	1	0	CONT
0	1	1	H.POSI
1	0	0	H.SIZE
1	0	1	V.POSI
1	1	0	V.SIZE
1	1	1	DISABLE

(Cf). If two switches are pushed at the same time, the monitor will be disabled, and the user controls will not function when pressed simultaneously.

C4	C5	
PD3	PD4	
1	0	UP
0	1	DOWN
1	1	DISABLE

(4-3) MEMORY ACCESS ERROR


CHECK +5V
NG
+5V REG FAILURE REFER TO ITEM (2-2-1)
OK
CHECK CPU MODE CODE
NG
CONTROL PWB FAILURE
OK
REFER TO DIGITAL CONTROL ERROR

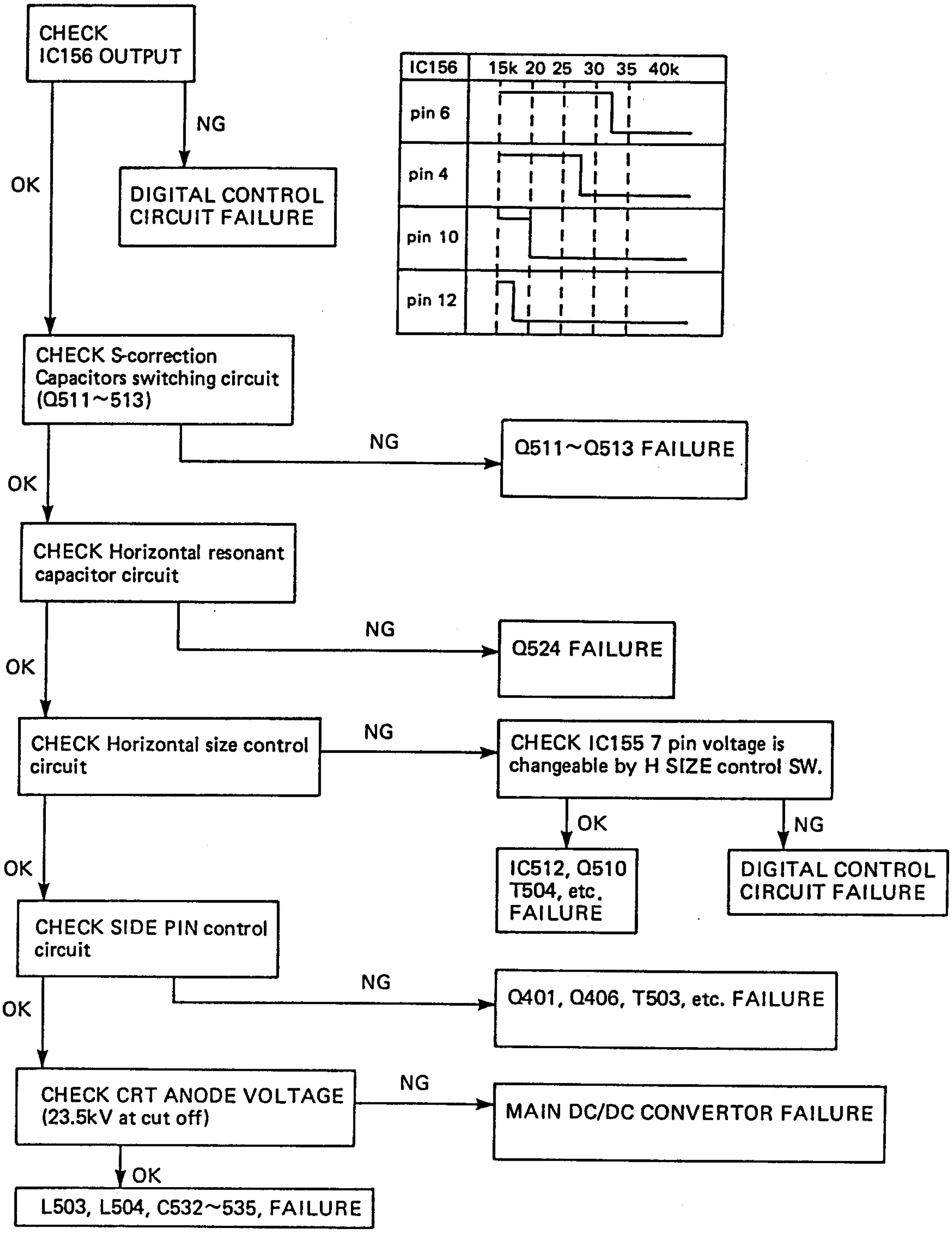
C6	C7	
PD6	PD7	
0	0	USER CONTROL MODE
0	1	FACTORY ADJ. MODE
1	0	DATA LOAD
1	1	FACTORY DATA WRITING

(Cf). If two different signals are put into the same memory location, the most recent signal will be written to this memory and the previous signal erased. Therefore, an error could occur when the microprocessor will have the same ID code for two different signals.

MDA ..... TTL, MODE SW → ON
PGC ..... ANALOG, COMPOSITE SYNC, MODE SW → OFF
MACII ..... ANALOG, SYNC ON G, MODE SW → OFF

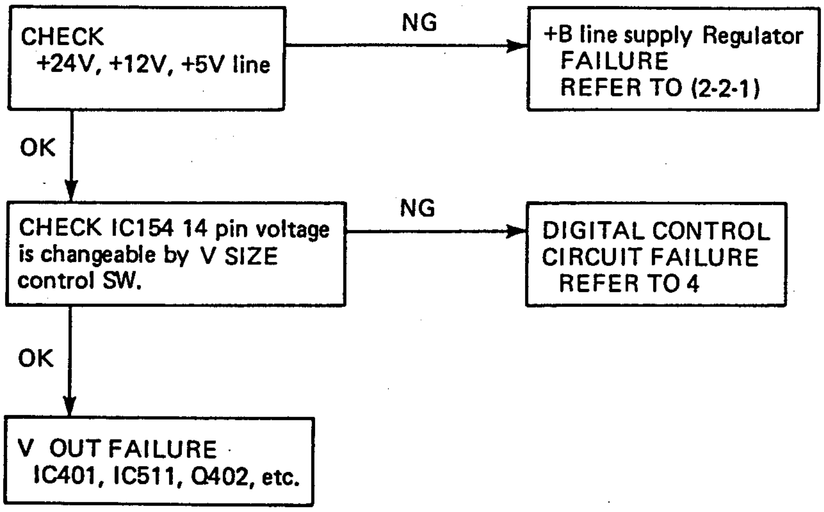
5. ABNORMAL PICTURE

(5-1) ABNORMAL HORIZONTAL WIDTH

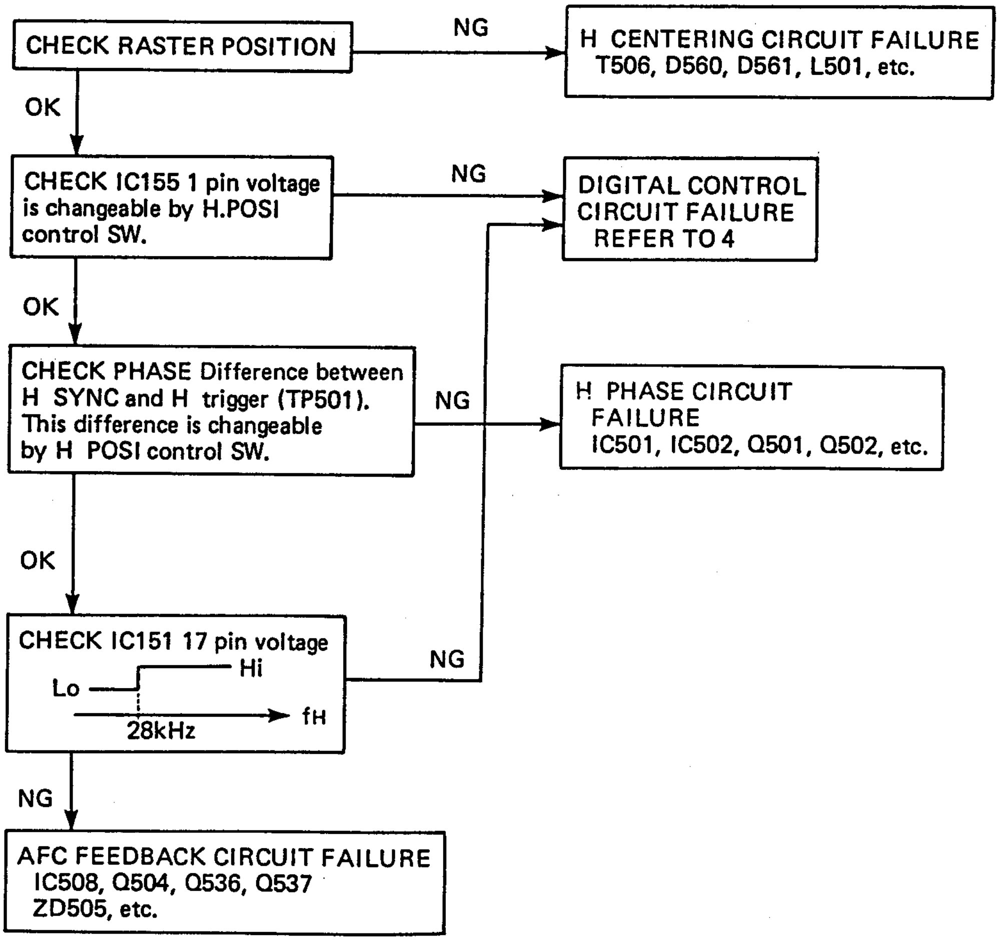

CHECK IC156 OUTPUT
NG
DIGITAL CONTROL CIRCUIT FAILURE
OK
IC156
15k 20 25 30 35 40k
pin 6
pin 4
pin 10
pin 12
CHECK S-correction Capacitors switching circuit (Q511~513)
NG
Q511~Q513 FAILURE
OK
CHECK Horizontal resonant capacitor circuit
NG
Q524 FAILURE
OK
CHECK Horizontal size control circuit
NG
CHECK IC155 7 pin voltage is changeable by H SIZE control SW.
OK
IC512, Q510 T504, etc. FAILURE
NG
DIGITAL CONTROL CIRCUIT FAILURE
OK
CHECK SIDE PIN control circuit
NG
Q401, Q406, T503, etc. FAILURE
OK
CHECK CRT ANODE VOLTAGE (23.5kV at cut off)
NG
MAIN DC/DC CONVERTOR FAILURE
OK
L503, L504, C532~535, FAILURE

(Cf). In the case of Factory adjustment at Horizontal width.
If it occers abnormal size by using width coil, please check
Input signal conditions. It must be setted VGA mode, Analog.

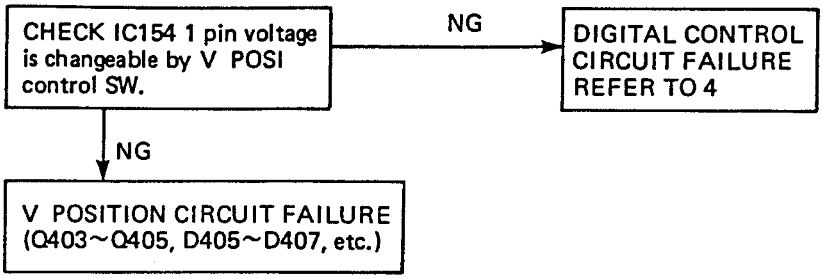
(5-2) ABNORMAL VERTICAL SIZE


CHECK
+24V, +12V, +5V line
NG
+B line supply Regulator
FAILURE
REFER TO (2-2-1)
OK
CHECK IC154 14 pin voltage
is changeable by V SIZE
control SW.
NG
DIGITAL CONTROL
CIRCUIT FAILURE
REFER TO 4
OK
V OUT FAILURE
IC401, IC511, Q402, etc.

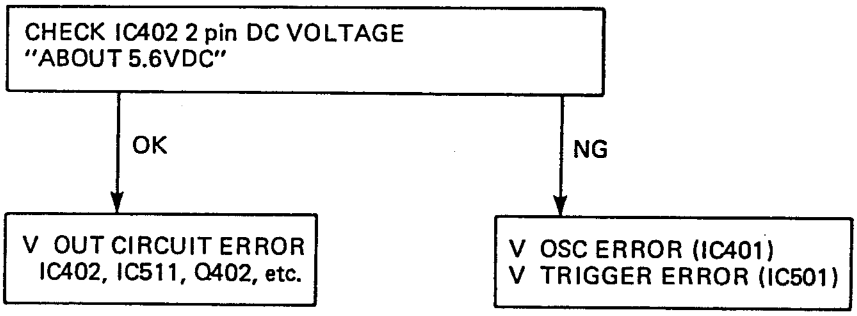
(5-3) ABNORMAL HORIZONTAL PICTURE POSITION


CHECK RASTER POSITION
NG
H CENTERING CIRCUIT FAILURE
T506, D560, D561, L501, etc.
OK
CHECK IC155 1 pin voltage
is changeable by H.POSI
control SW.
NG
DIGITAL CONTROL
CIRCUIT FAILURE
REFER TO 4
OK
CHECK PHASE Difference between
H SYNC and H trigger (TP501).
This difference is changeable
by H POSI control SW.
NG
H PHASE CIRCUIT
FAILURE
IC501, IC502, Q501, Q502, etc.
OK
CHECK IC151 17 pin voltage
Hi
Lo
28kHz
fH
NG
NG
AFC FEEDBACK CIRCUIT FAILURE
IC508, Q504, Q536, Q537
ZD505, etc.

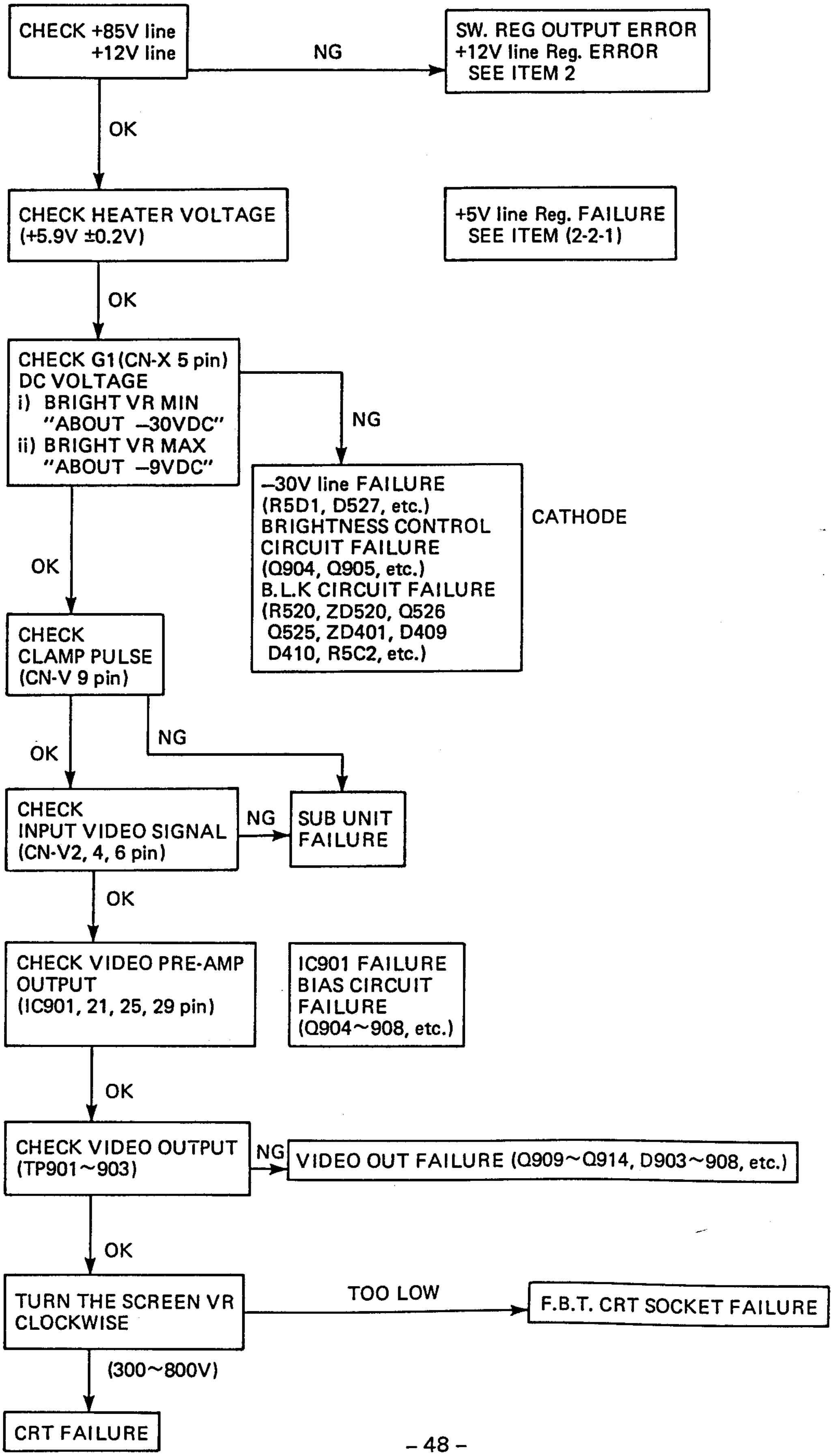
(5-4) ABNORMAL VERTICAL PICTURE POSITION


CHECK IC154 1 pin voltage is changeable by V POSI control SW.
NG
DIGITAL CONTROL CIRCUIT FAILURE REFER TO 4
NG
V POSITION CIRCUIT FAILURE (Q403~Q405, D405~D407, etc.)

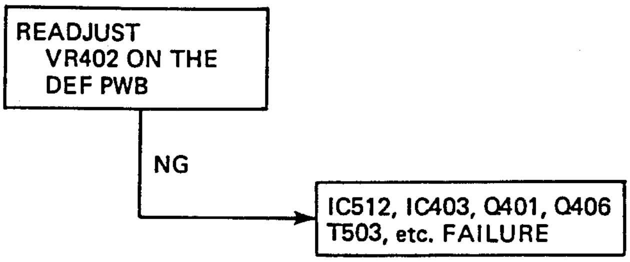
(5-5) ABNORMAL VERTICAL SCAN


CHECK IC402 2 pin DC VOLTAGE "ABOUT 5.6VDC"
OK
NG
V OUT CIRCUIT ERROR IC402, IC511, Q402, etc.
V OSC ERROR (IC401)
V TRIGGER ERROR (IC501)

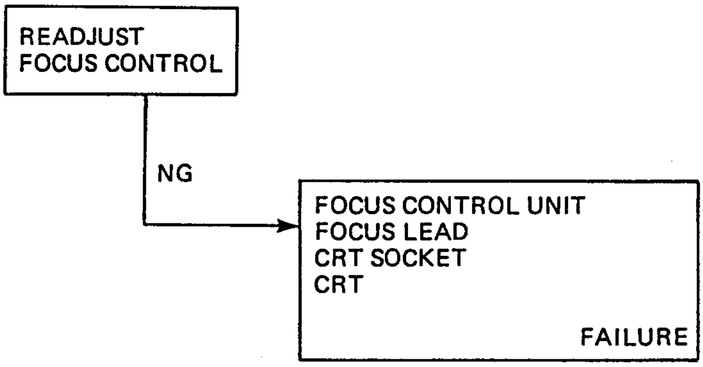
(5-6) ABNORMAL VIDEO


CHECK +85V line
+12V line
NG
SW. REG OUTPUT ERROR
+12V line Reg. ERROR
SEE ITEM 2
OK
CHECK HEATER VOLTAGE
(+5.9V ±0.2V)
+5V line Reg. FAILURE
SEE ITEM (2-2-1)
OK
CHECK G1 (CN-X 5 pin)
DC VOLTAGE
i) BRIGHT VR MIN
"ABOUT –30VDC"
ii) BRIGHT VR MAX
"ABOUT –9VDC"
NG
–30V line FAILURE
(R5D1, D527, etc.)
BRIGHTNESS CONTROL
CIRCUIT FAILURE
(Q904, Q905, etc.)
B.L.K CIRCUIT FAILURE
(R520, ZD520, Q526
Q525, ZD401, D409
D410, R5C2, etc.)
CATHODE
OK
CHECK
CLAMP PULSE
(CN-V 9 pin)
NG
OK
CHECK
INPUT VIDEO SIGNAL
(CN-V2, 4, 6 pin)
NG
SUB UNIT
FAILURE
OK
CHECK VIDEO PRE-AMP
OUTPUT
(IC901, 21, 25, 29 pin)
IC901 FAILURE
BIAS CIRCUIT
FAILURE
(Q904~908, etc.)
OK
CHECK VIDEO OUTPUT
(TP901~903)
NG
VIDEO OUT FAILURE (Q909~Q914, D903~908, etc.)
OK
TURN THE SCREEN VR
CLOCKWISE
TOO LOW
F.B.T. CRT SOCKET FAILURE
(300~800V)
CRT FAILURE

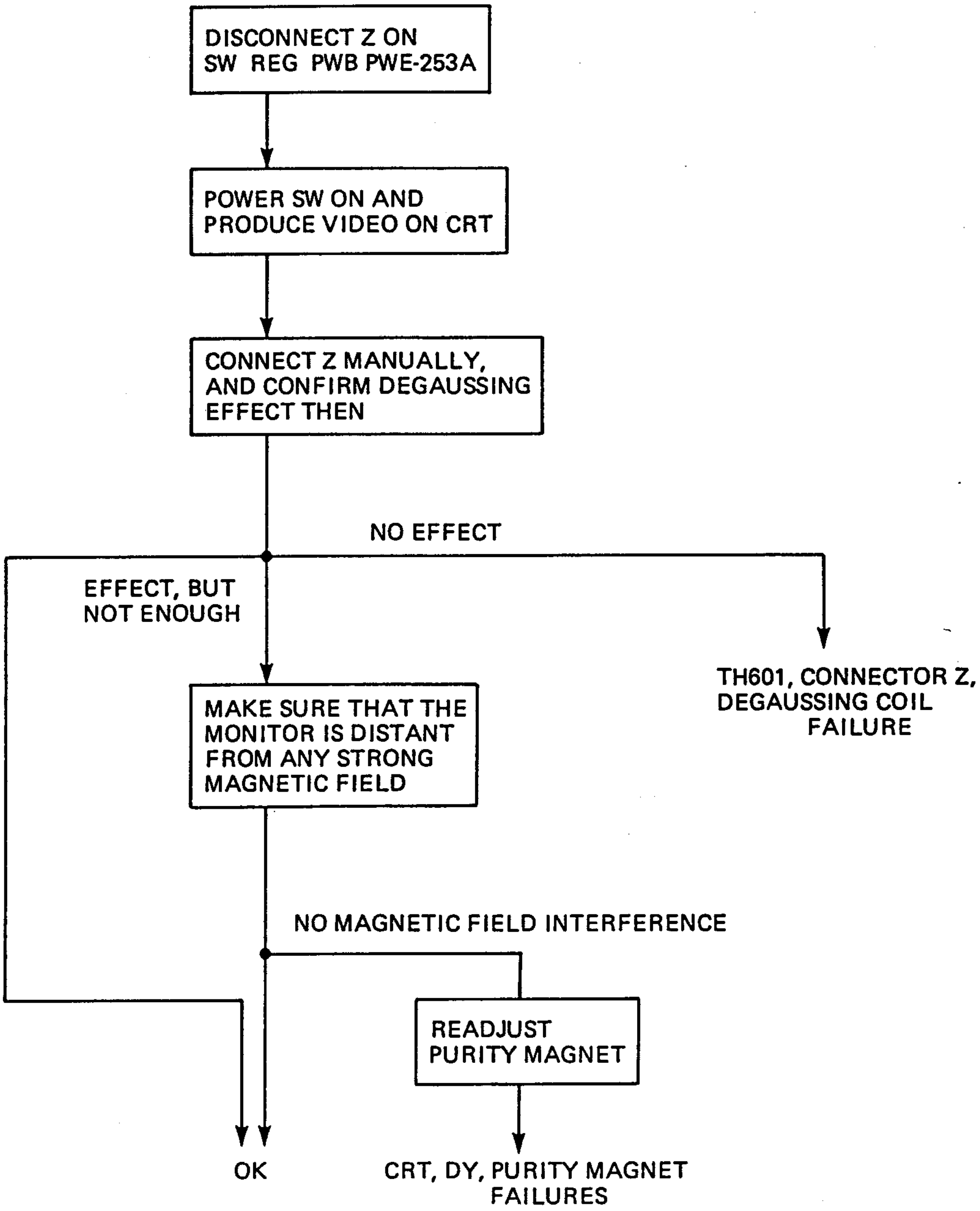
(5-7) SIDE PIN CUSHION DISTORTION FAILURE


READJUST
VR402 ON THE
DEF PWB
NG
IC512, IC403, Q401, Q406
T503, etc. FAILURE

(5-8) POOR FOCUS


READJUST
FOCUS CONTROL
NG
FOCUS CONTROL UNIT
FOCUS LEAD
CRT SOCKET
CRT
FAILURE

(5-9) IMPURITY ON CRT SCREEN


DISCONNECT Z ON SW REG PWB PWE-253A
POWER SW ON AND PRODUCE VIDEO ON CRT
CONNECT Z MANUALLY, AND CONFIRM DEGAUSSING EFFECT THEN
NO EFFECT
EFFECT, BUT NOT ENOUGH
TH601, CONNECTOR Z, DEGAUSSING COIL FAILURE
MAKE SURE THAT THE MONITOR IS DISTANT FROM ANY STRONG MAGNETIC FIELD
NO MAGNETIC FIELD INTERFERENCE
READJUST PURITY MAGNET
OK
CRT, DY, PURITY MAGNET FAILURES

THEORY OF OPERATION

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    (1-3) Deflection Circuit
    (1-4) Interface Circuit
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    (1-7) Low Magnetic Field Elimination Circuit (for JC-1404HMN)

2. CIRCUIT DESCRIPTION

    (2-1) Power Supply Circuit
        (2-1-1) Switching regulator unit (for JC-1404HME-1/EE-1/ED-1)
        (2-1-1)' Switching regulator unit (for JC-1404HMN)
        (2-1-2) Main DC/DC converter
        (2-1-3) +12V chopper regulator
        (2-1-4) +18V regulator
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        (2-1-6) −12V, −30V line

    (2-2) Deflection Circuit
        (2-2-1) Horizontal deflection unit
        (2-2-2) Vertical deflection circuit
        (2-2-3) H V circuit

    (2-3) Interface Circuit
        (2-3-1) Video interface
        (2-3-2) Sync interface

    (2-4) Video Circuit

    (2-5) Digital Control Circuit
        (2-5-1) Digital control unit
        (2-5-2) H-F/V converter
        (2-5-3) V-F/V converter
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        (2-5-5) H size circuit
        (2-5-6) V position circuit
        (2-5-7) V size circuit

1. CONSTRUCTION

Multisync 3D consists of seven major modules:

(1-1) CRT

The CRT is a Vacuum Tube which generates focus beams of electrons that are deflected by the deflection yoke. These beams make contact with the CRT's phosphor surface and produce light.
The fluorescent surface of the CRT has three different phosphor colors. An electron gun which consists of the metal coil heater, a cathode, and five grids all mounted in line (on the same horizontal axis) on the same shaft. The three beams (Red, Green, and Blue) of the electron gun pass thru the shadow mask before stricking the phosphorus surface of the CRT. The shadow mask ensures that the beams will strike only their corresponding phosphor colors on the screen.
A combination of Red, Green, and Blue phosphor dots energized with the correct amplitude can produce any color.

(1-2) Power Supply Circuit (for JC-1404HME-1/EE-1/ED-1)

Many different D.C. power supply voltages are produced in the MS-3D.
The following is listing of them:

a) +170V
b) +85V
c) +24V
d) Variable main DC/DC converter output (+B line for H OUT module)
e) +18V
f) +12V
g) +6V
h) +5V
i) −12V
j) −30V

Voltages a) thru c) are supplied by the Switching Regulator Unit (SMP-93AB-1) and Voltages d) thru j) are generated on the MAIN PWB (PWE-248A) by using Voltages a) and c) line power as the source.

(1-2)' Power Supply Circuit (for JC-1404HMN)

Many different D.C. power supply voltages are produced in the MS-3D.
The following is listing of them:

a) +170V
b) +85V
c) +24V
d) Variable main DC/DC converter output (+B line for H OUT module)
e) +18V
f) +12V
g) +6V
h) +5V
i) −12V
j) −30V

Voltages a) thru c) are supplied by the Switching Regulator Unit (PWE-270A) and Voltages d) thru j) are generated on the MAIN PWB (PWE-294A) by using Voltages a) and c) line power as the source.

(1-3) Deflection Circuit

Consists of the following three circuits:

a) Horizontal deflection
b) Vertical deflection
c) High voltage circuit for the CRT (Flyback Trans)

(1-4) Interface Circuit (SUB UNIT PWE-282)

It has the following three functions:

a) VIDEO Interface to the Video circuit
b) SYNC Interface for the Deflection circuit and the Digital control circuit
c) Digital Interface for the Digital control circuit

The sub unit sends an identification signal to the digital control circuit as to the type of PC or video graphics card to which the monitor is currently interfaced with.

(1-5) Video Circuit

The video signal sent by the Interface circuit is amplified by this circuit and supplied to the cathode of the CRT.

(1-6) Digital Control Circuit

The digital control circuit has the following functions: For a more detailed information please refer to the circuit description (2-5).

a) Automatic synchronization
b) Management of the displaying proper picture
    - Automatic signal identification
    - Automatic sizing
    - Automatic centering
    - Management of picture data
c) Management of user controls
d) Management of factory adjustment

The following outputs are produced by the D/A (Digital to Analog) Converter (μPD6336C).

e) H-F/V converter output
f) V-F/V converter output
g) Horizontal size control output
h) Horizontal position control output
i) Vertical size control output
j) Vertical position control output

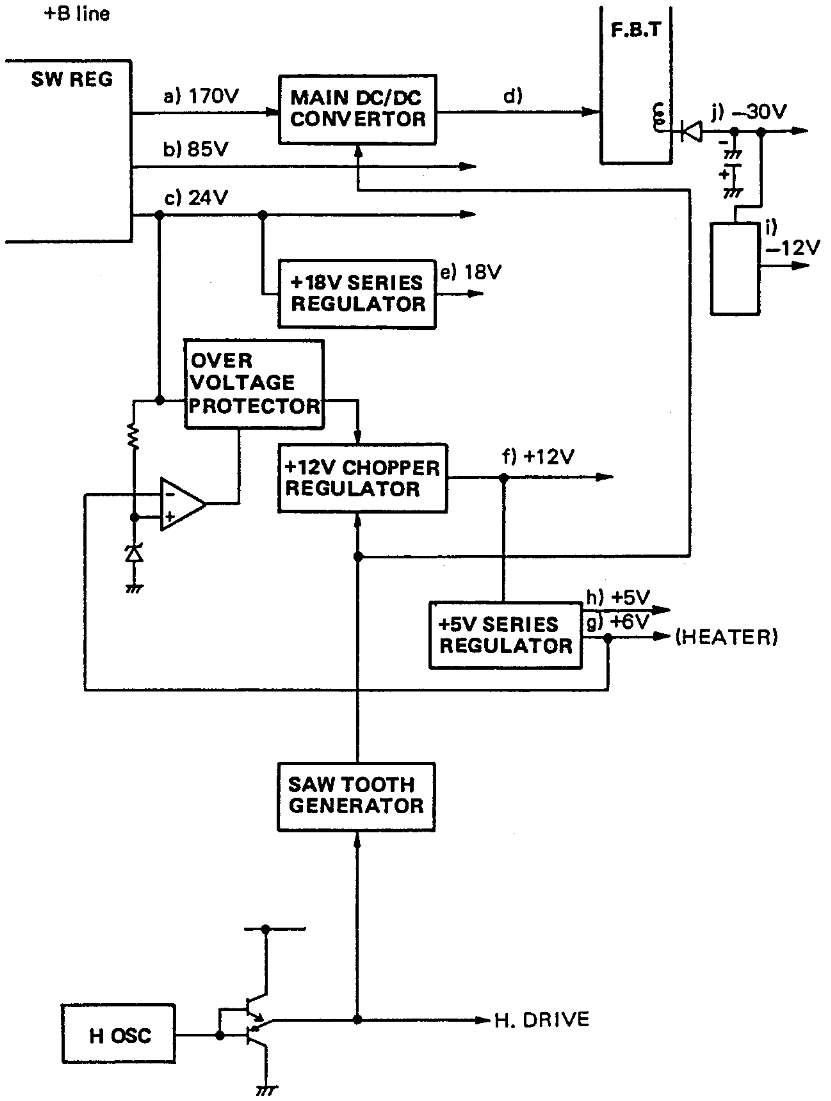
(1-7) Low Magnetic Field Elimination Circuit (for JC-1404HMN)

This circuit eliminate L.M.F. from Displayunit by diflection current.

2. CIRCUIT DESCRIPTION

(2-1) Power Supply Circuit

(Fig. 2-1) Block Diagram of the D.C. Power Supply of the MS-3D.

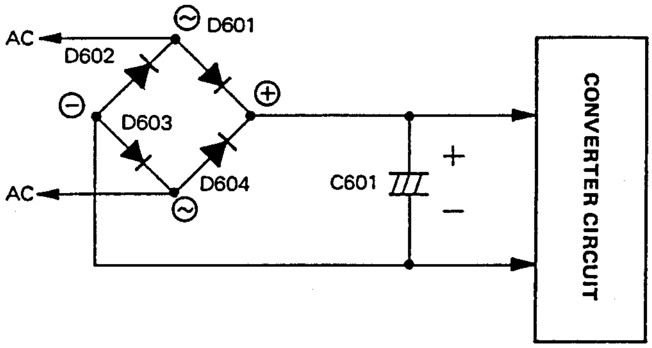


+B line
SW REG
a) 170V
b) 85V
c) 24V
MAIN DC/DC CONVERTOR
d)
F.B.T
j) –30V
i) –12V
+18V SERIES REGULATOR
e) 18V
OVER VOLTAGE PROTECTOR
+12V CHOPPER REGULATOR
f) +12V
+5V SERIES REGULATOR
h) +5V
g) +6V
(HEATER)
SAW TOOTH GENERATOR
H OSC
H. DRIVE

(2-1-1) SWITCHING REGULATOR UNIT (for JC-1404HME-1/EE-1/ED-1)

(a) Rectifying and smoothing circuit

AC input is rectified by D601, D602, D603, and D604. Then, it is smoothed by C601. The resultant DC voltage is supplied with the converter circuit.

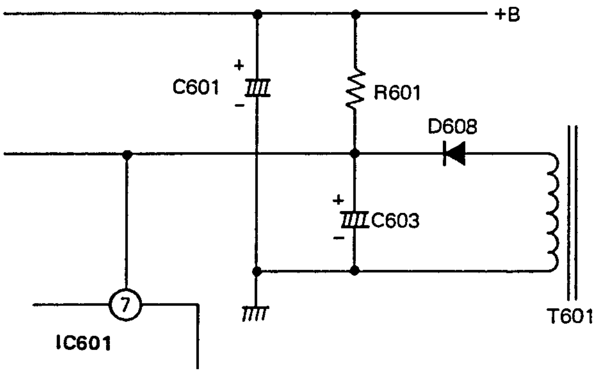


(Fig. 2-1-1) Rectifying and Smoothing Circuit

(b) Auxiliary power supply circuit

The auxiliary power supply circuit is needed to activate IC601. At the time of power ON, charging current flows into the capacitor C603 via R601. Oscillation starts when the voltage of IC601 pin 7 reaches 16V (typical) by this charging operation.

After the start of oscillation, the fly-back voltage that induced by auxiliary winding of the switching transformer T601 is rectified and smoothed by D608 and C603. The resultant DC voltage is supplied with IC601.

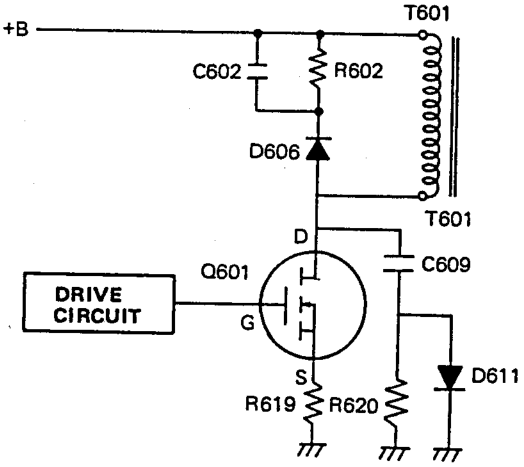


(Fig. 2-1-2) Auxiliary Power Supply Circuit

(c) Converter circuit

The converter circuit consists of the primary winding of the switching transformer T601, a switching device Q601, and surge absorbers (C602, R602, D606, C609, R620 and D611) that are connected to the primary winding.

The oscillating signal from IC601 pin 6 is applied to the gate of Q601 causing the drain-source to be turned on and off so that oscillating voltage is applied to the primary winding of T601.

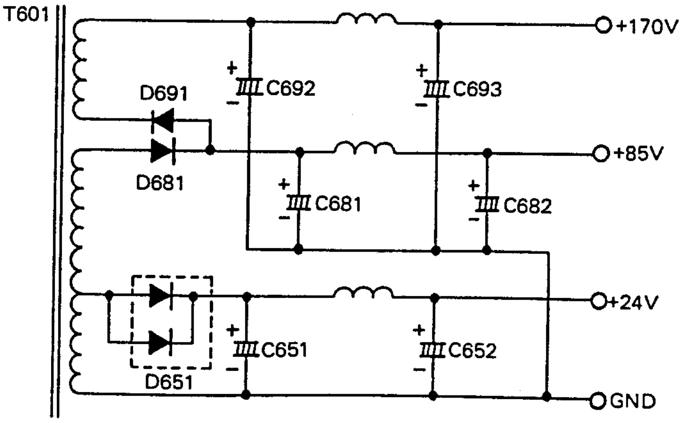

T601
+B
C602
R602
D606
T601
D
Q601
DRIVE CIRCUIT
G
C609
D611
S
R619
R620

(Fig. 2-1-3) Converter Circuit

(d) Output smoothing circuit

The fly-back voltage generated at the secondary windings of the switching transformer T601 are rectified by D651, D681, and D691. It is smoothed by C651, C652, C681, C682, C692, and C693 so that rectified DC voltages are obtained.

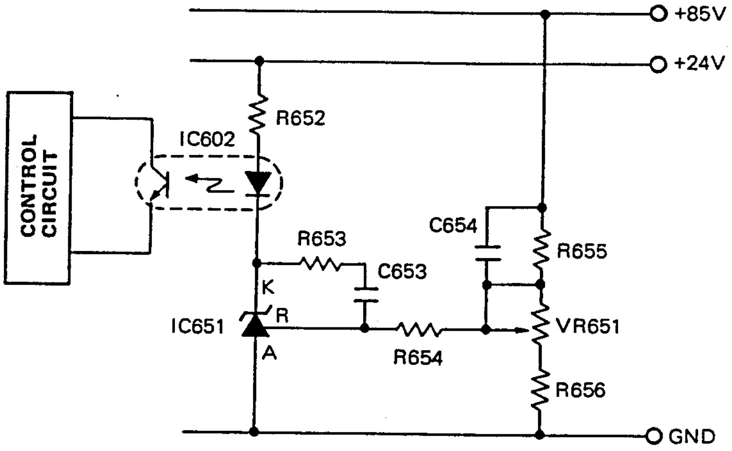
The fly-back voltage is constantly maintained by controlling the ON period duty cycle of Q601 in the converter circuit.


T601
+170V
D691
C692
C693
+85V
D681
C681
C682
+24V
C651
C652
D651
GND

(Fig. 2-1-4) Output Smoothing Circuit

(e) Error detection amplifier circuits

The output voltage 85V is divided by the network resistors. This divided voltage is compared to the reference voltage at the error amplifier IC651. An error signal is applied to the control circuit via the photocoupler IC602.



+85V
+24V
CONTROL CIRCUIT
IC602
R652
R653
C654
R655
C653
K
IC651
R
A
R654
VR651
R656
GND

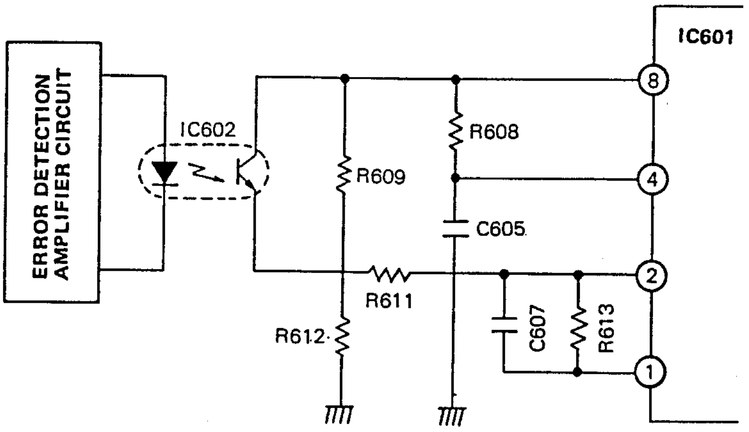
(Fig. 2-1-5) Error Detection Amplifier Circuit

(f) Oscillation circuit and control circuit

The oscillation and control circuits are comprised in IC601.

IC601 has a built-in oscillator that frequency is determined by R608 and C605 connected to pin 4 and pin 8 respectively.

The output of the error detection amplifier circuit is fed back to the control circuit from IC602 (pin 2) controlling the duty cycle of Q601 so that output voltage is kept constant.



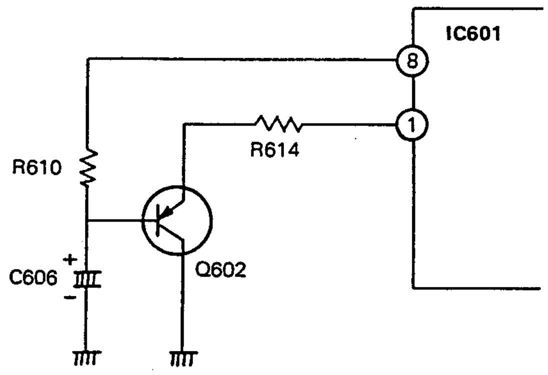
IC601
ERROR DETECTION AMPLIFIER CIRCUIT
IC602
R608
R609
C605
R611
R612
C607
R613
8
4
2
1

(Fig. 2-1-6) Oscillation and Control Circuits

(g) Soft start operation

When the power switch ON, converter circuit needs the gradually widen PWM pulse that is starting at zero duty cycle by **R610, C606, and Q602.**

The IC601 (pin 1) voltage rise gradually by time constant of R610 and C606.

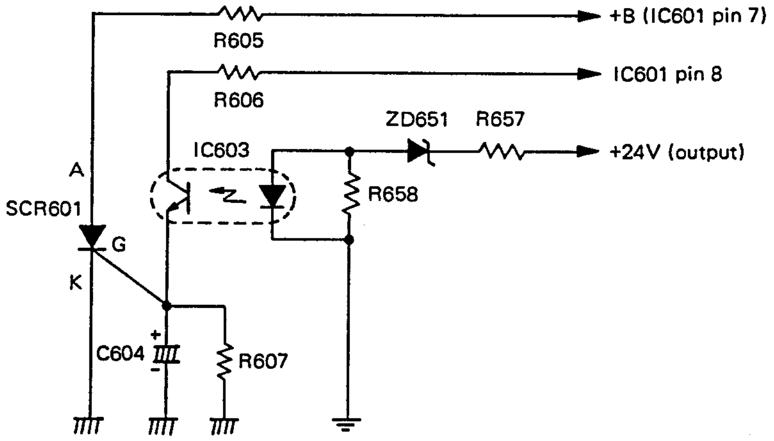

IC601
8
1
R614
R610
C606
+
-
Q602

(Fig. 2-1-7) Soft Start Operation

(h) Over voltage protection

If any failure occurs or the 24V line output increases beyond 29V (26.4V ~ 33.6V), the voltage at the output is sensed by the Zener Diode ZD651. This Diode (ZD651) will activate the LED within the photocoupler IC603, turning on the transistor within it.

Once the transistor is on, IC603 make SCR601 turn on and latch down the +B of IC601 (pin 7), stopping the oscillation within this IC.

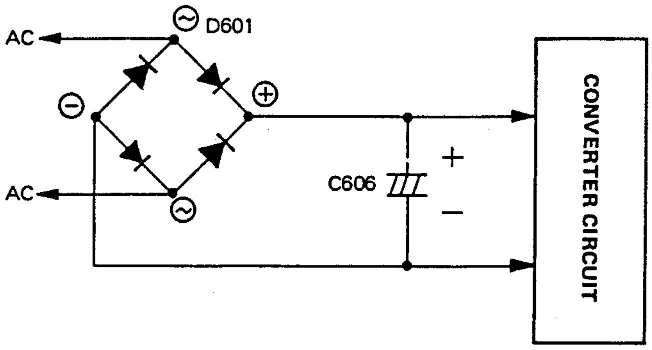

+B (IC601 pin 7)
R605
IC601 pin 8
R606
ZD651
R657
IC603
+24V (output)
A
SCR601
R658
G
K
C604
+
-
R607

(Fig. 2-1-8) Over Voltage Protection

(2-1-1)' SWITCHING REGULATOR UNIT (for JC-1404HMN)

(a)' Rectifying & filtering circuit

AC input is rectified by D601. Then, it is filtered by C606. The resulting DC voltage is supplied to the converter circuit.

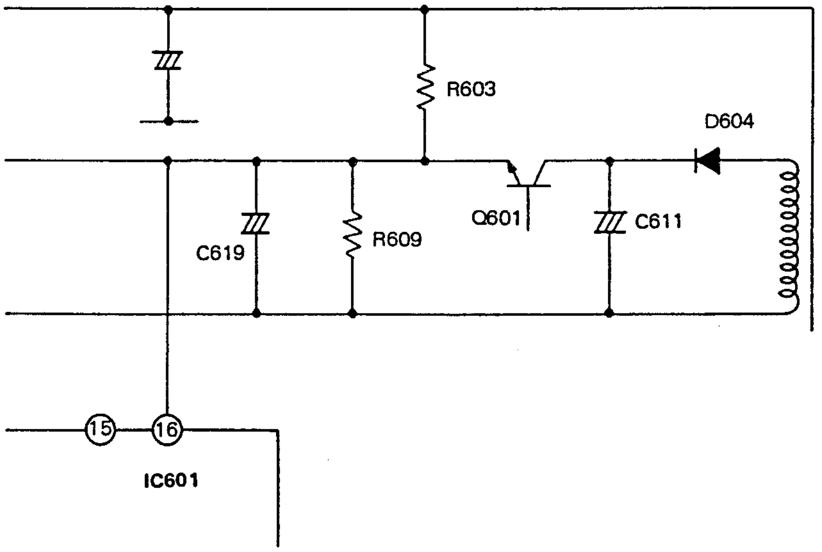


(Fig. 2-1-1') Rectifying & Filtering Circuit

(b)' Auxiliary power supply circuit

The auxiliary power supply circuit is needed to activate IC601. At the time of power ON, charging current flows into the capacitor C619 via R603. Oscillation starts when the voltage of IC601 pin 16 reaches 17V by this charging operation.

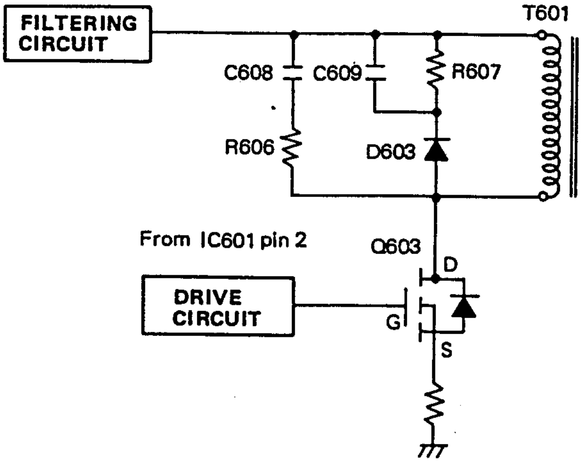
After the start of oscillation, the foward voltage of the auxiliary coil for the switching transformer is rectified and filtered by D604 and C611, and regulated by Q601. The resultant DC voltage is supplied to IC601.



(Fig. 2-1-2') Auxiliary Power Supply Circuit (c)' Converter circuit

The converter circuit consists of the primary winding of the switching transformer T601, a switching device Q603, and surge absorbers (C608, R606, C609, D603, and R607) that are connected in serial to the primary winding.

The oscillating signal from IC601 pin 2 is applied to the gate of Q603 causing the drain-source to be turned on and off so that oscillating voltage is applied to the primary winding of T601.

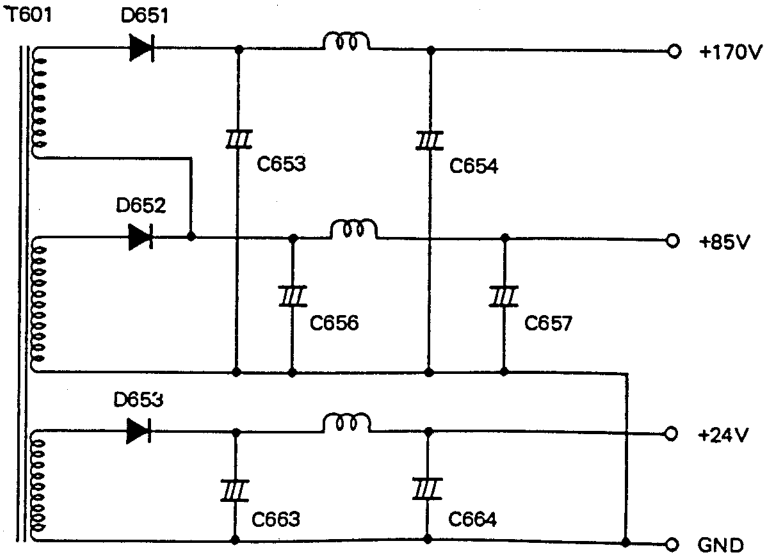

FILTERING CIRCUIT
T601
C608
C609
R607
R606
D603
From IC601 pin 2
Q603
D
DRIVE CIRCUIT
G
S

(Fig. 2-1-3') Converter Circuit

(d)' Output filtering circuit

The fly-back voltage generated at the secondary windings of the switching transformer T601 are rectified by D651, D652, and D653. The, it is filtered by C653, C654, C656, C657, C663, and C664 so that rectified DC voltages are obtained.

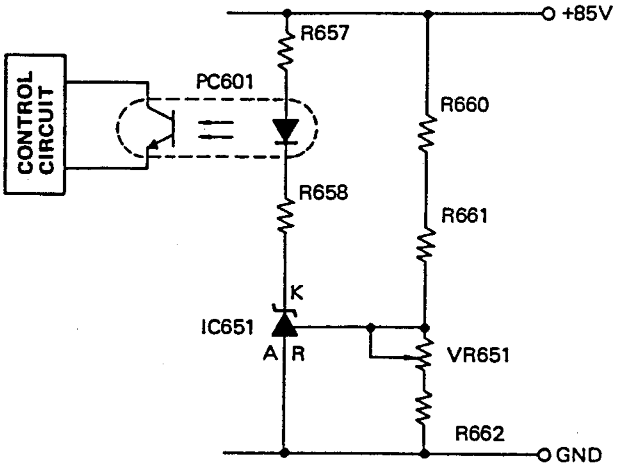
The fly-back voltage is constantly maintained by controlling the ON period duty cycle of Q603 in the converter circuit.


T601
D651
+170V
C653
C654
D652
+85V
C656
C657
D653
+24V
C663
C664
GND

(Fig. 2-1-4') Output Smoothing Circuit

(e)' Error detection amplifier circuits

The output voltage 85V is divided by the network resistors. This divided voltage is compared to the reference voltage at the error amplifier IC651. An error signal is applied to the control circuit via the photocoupler PC601.


+85V
R657
CONTROL CIRCUIT
PC601
R660
R658
R661
K
IC651
A
R
VR651
R662
GND

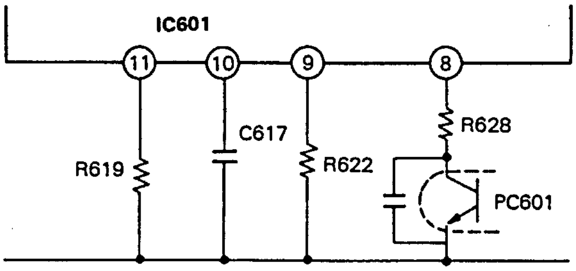
(Fig. 2-1-5') Error Detection Amplifier Circuit

(f)' Oscillating circuit, control circuit, and drive circuit

The oscillating, control, and drive circuits are comprised in IC601.

IC601 has a built-in oscillator whose frequency is determined by R622, C617, and R619 connected to pins 9, 10, and 11, respectively.

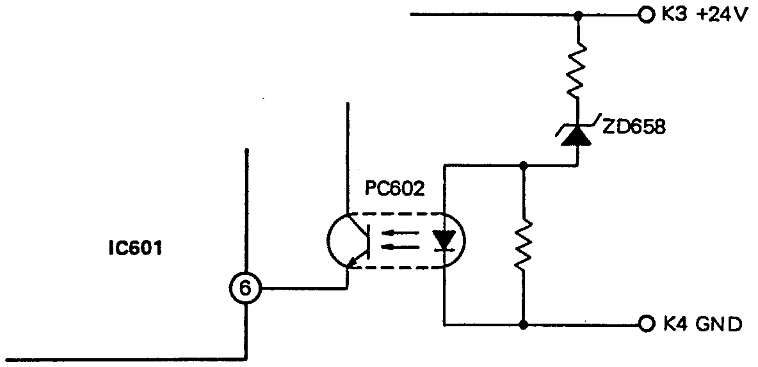
The output of the error detection amplifier circuit is fed back to the control circuit from pin 8 via PC601 to control the duty cycle of Q603 so that output voltage is kept constant.


IC601
11
10
9
8
R619
C617
R622
R628
PC601

(Fig. 2-1-6') Oscillating & Control Circuits (g)' Overvoltage protection

If some failure occurs and the 24[V] line output increases beyond 29[V], the voltage at the output is sensed by the Zener Diode ZD658.

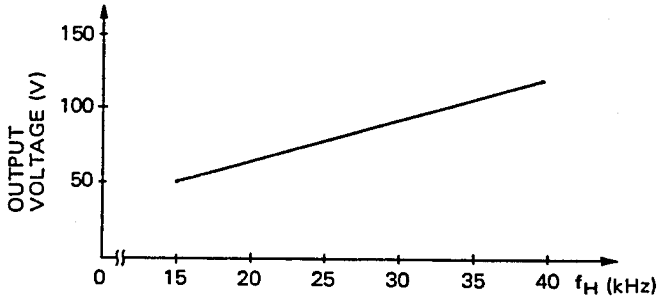
This Diode (ZD658) will activate the LED within the photocoupler PC602, turning on the transistor within it. Once the transistor is on, pin 6 of IC601 will go high, stopping the oscillation within this IC.



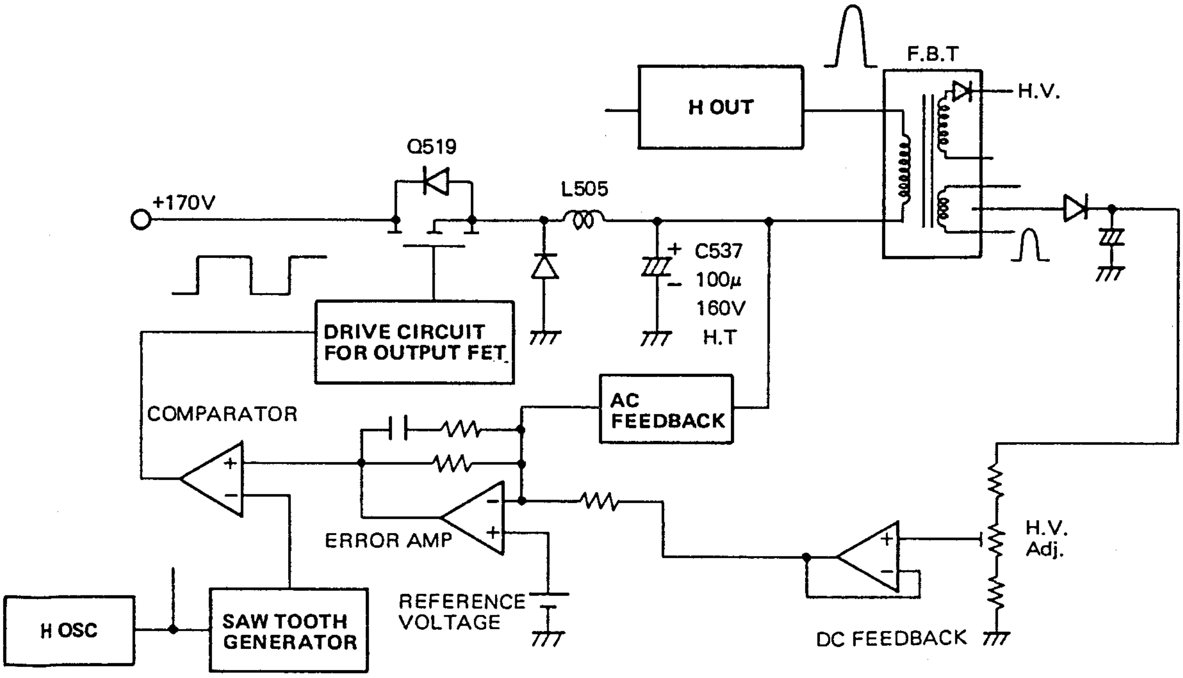
(Fig. 2-1-7') Overvoltage Protection Circuit

(2-1-2) MAIN DC/DC CONVERTER (d)

This converter's output is the power source for the Flyback Transformer. It is controlled by PWM method and synchronized by the Horizontal OSC. output.
Output voltage of this converter is varied with respect to Horizontal OSC fequency so that the voltage level of the Flyback pulse is constant for any frequency. This Constant Voltage level will also produce a constant Horizontal Raster size for any frequency. If H OSC stops the output of this converter will become low (in order to protect the CRT beam spot).
The relationship between Output Voltage and H OSC frequency is shown in Fig. 2-1-9a.
BLOCK DIAGRAM of this regulator is shown in Fig. 2-1-9b.



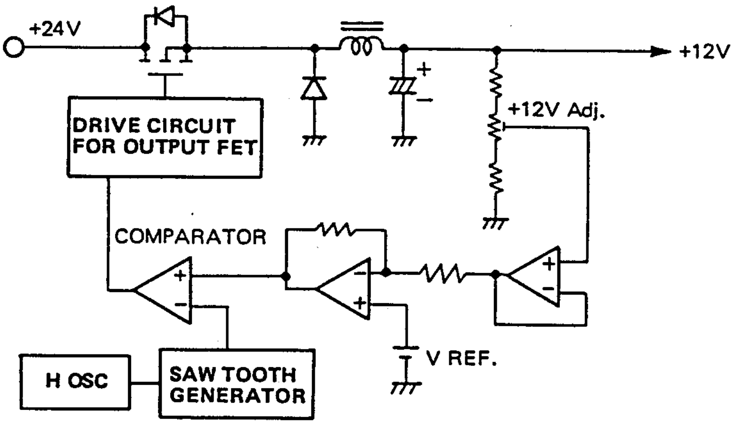
(Fig. 2-1-9 a) Relationship between the Output Voltage and the H OSC Frequency.


F.B.T
H OUT
H.V.
Q519
L505
+170V
+ C537
100μ
160V
H.T
DRIVE CIRCUIT FOR OUTPUT FET
AC FEEDBACK
COMPARATOR
ERROR AMP
H.V. Adj.
REFERENCE VOLTAGE
DC FEEDBACK
H OSC
SAW TOOTH GENERATOR

(Fig. 2-1-9b) BLOCK DIAGRAM of Main DC/DC Converter.

(2-1-3) +12V chopper regulator (f)

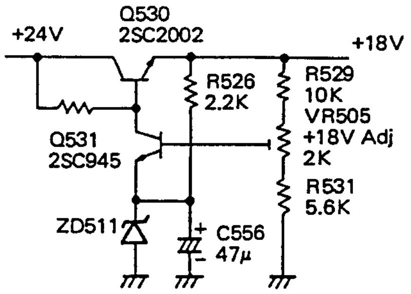
This regulator is PWM controlled and synchronized with the H OSC output of the DC/DC converter. The regulator's feedback circuit provides a constant and stable output voltage for any conditions (H OSC Frequency and +12V line load variations). If the H OSC operation stops, this output voltage will become low.
The BLOCK DIAGRAM is shown in Fig. 2-1-10.


+24V
+12V
DRIVE CIRCUIT FOR OUTPUT FET
+12V Adj.
COMPARATOR
V REF.
H OSC
SAW TOOTH GENERATOR

(Fig. 2-1-10) BLOCK-DIAGRAM of +12V Regulator.

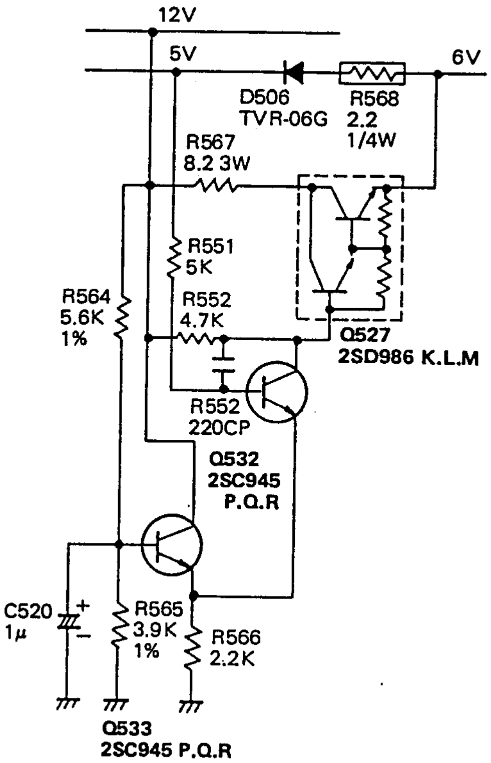
(2-1-4) +18V regulator (e)

The H-F/V converter, the H OSC, and the H HOLD circuit are supplied by this voltage line. Therefore, this line requires an exact voltage of 18V±0.1V.


Q530
2SC2002
+24V
+18V
R526
2.2K
R529
10K
VR505
+18V Adj
2K
R531
5.6K
Q531
2SC945
ZD511
C556
47μ

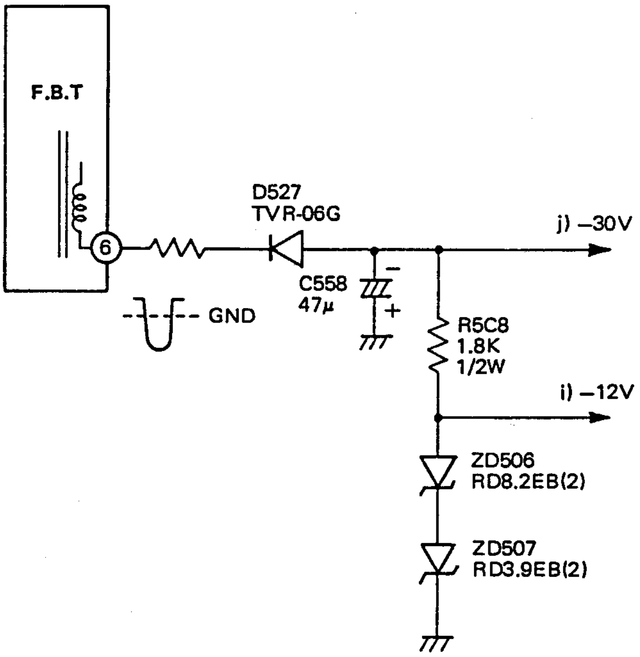
(2-1-5) +5V regulator (g and h)

This circuit generates a +6V and a +5V from the +12V line.
The +6V is used for the CRT heater, and the +5V is for the digital control and the AFC feedback circuits.


12V
5V
6V
D506
TVR-06G
R568
2.2
1/4W
R567
8.2 3W
R551
5K
R564
5.6K
1%
R552
4.7K
Q527
2SD986 K.L.M
R552
220CP
Q532
2SC945
P.Q.R
C520
1μ
R565
3.9K
1%
R566
2.2K
Q533
2SC945 P.Q.R

(2-1-6) -12V and -30V lines (i and j)

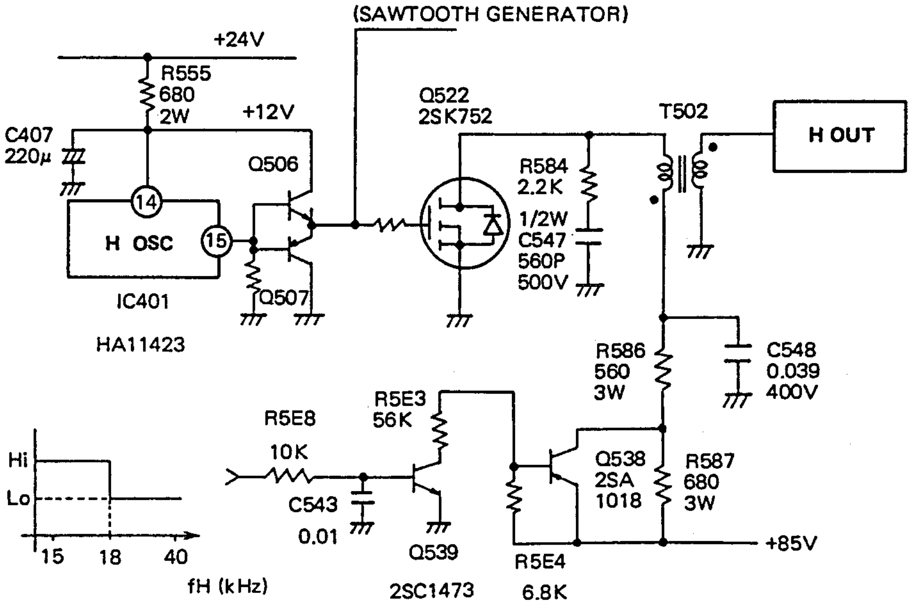
The −30V is produced by rectifing the flyback pulse. The −12V is produced by the reverse biasing of the zener diode.


F.B.T
6
D527
TVR-06G
C558
47μ
GND
j) −30V
R5C8
1.8K
1/2W
i) −12V
ZD506
RD8.2EB(2)
ZD507
RD3.9EB(2)

(2-2) Deflection Circuit

(2-2-1) HORIZONTAL DEFLECTION UNIT

(a) Horizontal drive circuit


(SAWTOOTH GENERATOR)
+24V
R555
680
2W
+12V
C407
220μ
14
H OSC
15
IC401
HA11423
Q506
Q507
Q522
2SK752
R584
2.2K
1/2W
C547
560P
500V
T502
H OUT
R586
560
3W
C548
0.039
400V
R5E3
56K
R5E8
10K
C543
0.01
Q539
2SC1473
R5E4
6.8K
Q538
2SA
1018
R587
680
3W
+85V
Hi
Lo
15
18
40
fH (kHz)

The horizontal pre-drive pulse produce at IC401 pin 15 is applied to Q522. Then, it is amplified by T502 to turn on the horizontal output transistor Q523.

NOTE: When the horizontal frequency is less than 28 kHz, the power is supplied to T502 via R586 from the +85V line. And, when horizontal frequency is more than 28 kHz, the power is supplied via R586 and R587 from the +85V line.

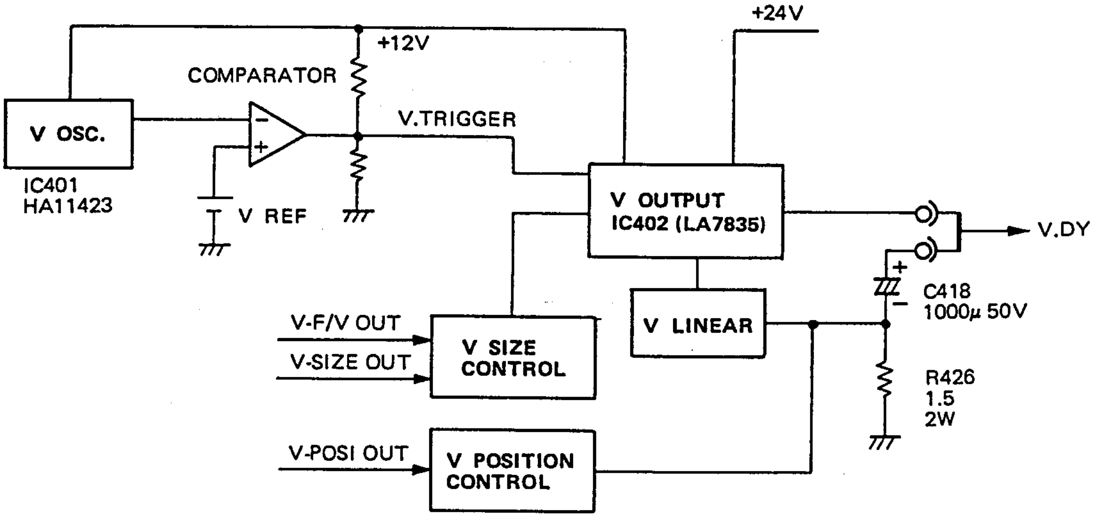
(b) Horizontal output circuit

This circuit produces a sawtooth current waveform to the Horizontal DY by switching Q523 and D522 ON and OFF. In order to meet wide a range of frequencies (15~38 kHz), several circuit and changed in corresponding frequency bands.

- Horizontal resonant capacitor . . . . . 17 kHz
- S-correction capacitor
  - $f_H \leqq 20$ kHz
  - $20 < f_H \leqq 27$ kHz
  - $27 < f_H \leqq 33$ kHz
  - $33 < f_H \leqq 38$ kHz
- Drive circuit of Q523 . . . . . 28 kHz

Due to this switching circuit and multiple DC outputs from the DC to DC converter circuit, the MS 3D can practically the same size raster and linearity for a wide range of frequencies.

(2-2-2) Vertical deflection circuit


+24V
+12V
COMPARATOR
V.TRIGGER
V OSC.
IC401
HA11423
V REF
V OUTPUT
IC402 (LA7835)
V.DY
C418
1000μ 50V
V LINEAR
V-F/V OUT
V-SIZE OUT
V SIZE
CONTROL
R426
1.5
2W
V-POSI OUT
V POSITION
CONTROL

(Fig. 2-2-2) BLOCK DIAGRAM of vertical deflection

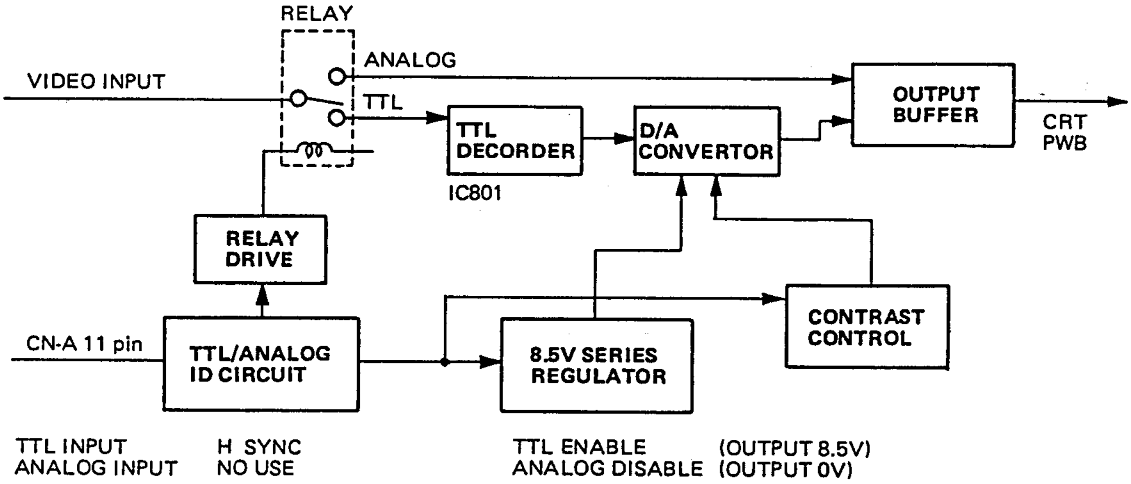
The vertical deflection circuit produces a sawtooth current waveform to the vertical D.Y. The output of IC402 (LA7835) is suited for multi-scanning monitors because it easily controls the vertical size (by DC control) and is also easy to synchronize.

(2-2-3) H.V. circuit

The H.V. circuit supplies high voltage (23.5 kV) to the anode of the CRT. This circuit is composed of the fly-back transformer and the H out circuit. The energy is stopped on the primary coil of F.B.T. when the H output transistor Q523 is turned ON. This energy is transformed through the F.B.T. when it is turned OFF. The high voltage generated by the secondary coil is rectified 23.5 kV. This voltage is controlled by VR504. The high voltage circuit has two high voltage protection circuits to meet the D.H.H.S. standards.
The first circuit is IC401's (HA11423) internal protection circuit. If the high voltage increase, the voltage at TP2005 increase. When TP2005 voltage exceeds 0.7V, IC401's protection circuit turns ON and the H OSC is stopped.
The second circuit's operation is similar to the one described.

(2-3) Interface Circuit (PWE-282)

(2-3-1) Video Interface Circuit


RELAY
ANALOG
VIDEO INPUT
TTL
TTL DECORDER
IC801
D/A CONVERTOR
OUTPUT BUFFER
CRT PWB
RELAY DRIVE
CN-A 11 pin
TTL/ANALOG ID CIRCUIT
8.5V SERIES REGULATOR
CONTRAST CONTROL
TTL INPUT H SYNC
ANALOG INPUT NO USE
TTL ENABLE (OUTPUT 8.5V)
ANALOG DISABLE (OUTPUT 0V)

(Fig. 2-3-1) BLOCK DIAGRAM of the Video Interface

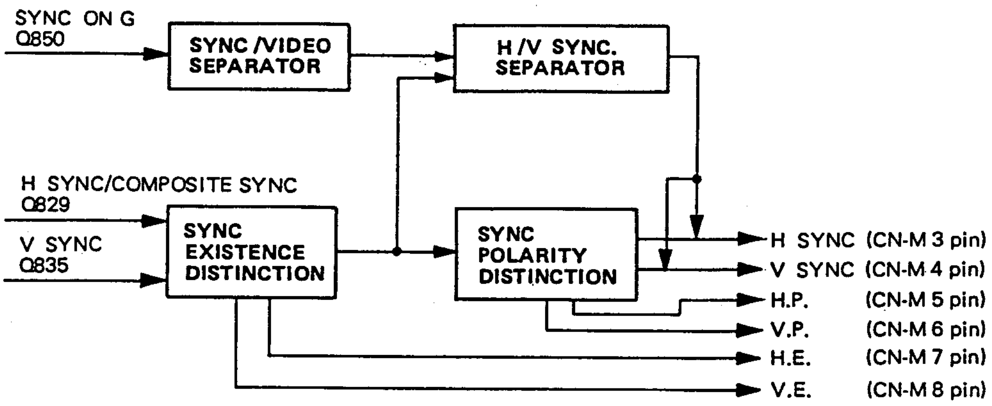
- TTL/ANALOG identification circuit

This circuit monitors the signal on pin 11 of CN-A. If there is a Horizontal pulse, the MS 3D assume that TTL Video is connected to it. The TTL/ANALOG ID output controls relays RL801 and RL802 and the 8.5V series regulator.
In case of ANALOG video input, the relays enable the ANALOG circuit and the 8.5V line, and disables the TTL enable circuit.
In case of TTL video input, the relays enable the TTL circuit, the video information is passed to the TTL decoder (IC801). This TTL decoder IC produces signals based on the MODE and color switch settings.
The maximum output of the D/A converter is 0.7 Vp-p.
The output level of the D/A converter is controlled by the CONTRAST VR only when a TTL video signal is the video source.

(2-3-2) Sync Interface Circuit

(a) The outputs of this circuit are positive H SYNC and V SYNC for the following inputs:

(i) SEPARATE SYNC	POSITIVE/NEGATIVE polarity
(ii) COMPOSITE SYNC	POSITIVE/NEGATIVE polarity
(iii) SYNC ON GREEN	NEGATIVE polarity



SYNC ON G
Q850
SYNC /VIDEO SEPARATOR
H /V SYNC. SEPARATOR
H SYNC/COMPOSITE SYNC
Q829
V SYNC
Q835
SYNC EXISTENCE DISTINCTION
SYNC POLARITY DISTINCTION
H SYNC (CN-M 3 pin)
V SYNC (CN-M 4 pin)
H.P. (CN-M 5 pin)
V.P. (CN-M 6 pin)
H.E. (CN-M 7 pin)
V.E. (CN-M 8 pin)

(Fig. 2-3-2) BLOCK DIAGRAM of the Sync Interface Circuit

(i) For the separate sync. mode, the horizontal and vertical synchronization signals are supplied to the SYNC. EXISTENCE DISTINCTION and to the SYNC POLARITY DISTINCTION circuits. The outputs after these circuits are a positive H sync and a negative V sync.

(ii) For the composite sync. mode, the composite synchronization signal is applied to the H /V SYNC SEPARATOR circuit from the SYNC. EXISTENCE DISTINCTION circuit.

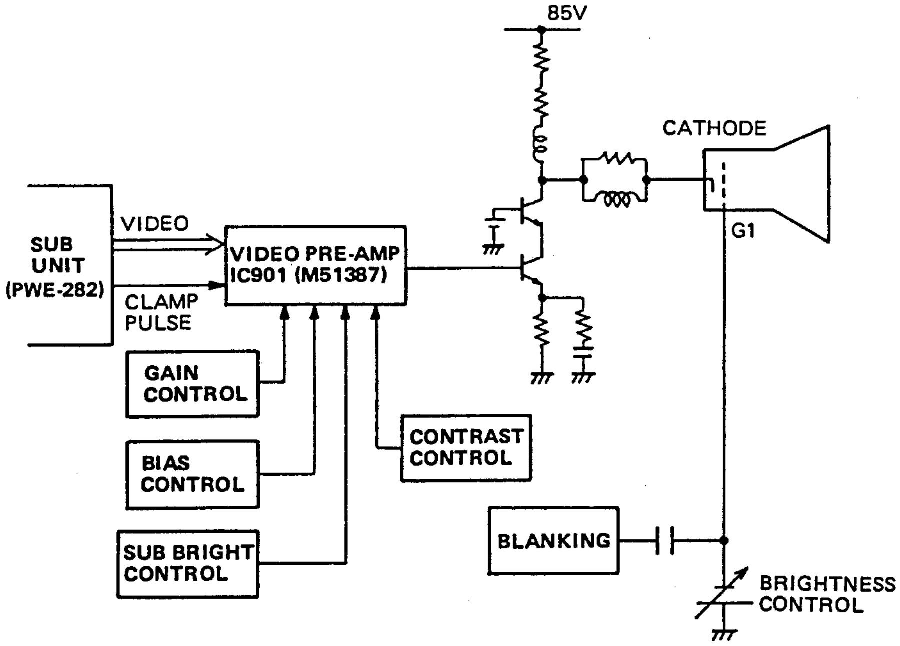
(iii) For the sync on green analog mode, the green signal is applied to the SYNC/VIDEO SEPARATOR circuit which produces a composite synchronization signal. And then, it is the same as for the composite sync. mode.

(b) The outputs of the distinction circuit are as follows:
These outputs are applied to IC151 (CPU) on the main PWB.

• TTL/ANALOG Identification signal (CN-M 5 pin)	L: ANALOG H: TTL
• H SYNC signals's polarity (CN-M 6 pin)	L: POSITIVE POLARITY H: NEGATIVE POLARITY
• V SYNC signal's polarity (CN-M 7 pin)	L: POSITIVE POLARITY H: NEGATIVE POLARITY
• H SYNC availability (CN-M 8 pin)	L: NONE H: AVAILABLE
• V SYNC availability (CN-M 9 pin)	L: NONE H: AVAILABLE
• Mode signal (CN-M 10 pin)	L: NORMAL H: MDA/USER MODE

NOTE: L . . . Low level of TTL
H . . . High level of TTL

(2-4) Video Circuit


85V
CATHODE
G1
SUB
UNIT
(PWE-282)
VIDEO
CLAMP
PULSE
VIDEO PRE-AMP
IC901 (M51387)
GAIN
CONTROL
BIAS
CONTROL
SUB BRIGHT
CONTROL
CONTRAST
CONTROL
BLANKING
BRIGHTNESS
CONTROL

(Fig. 2-4-1) BLOCK DIAGRAM of the Video Module

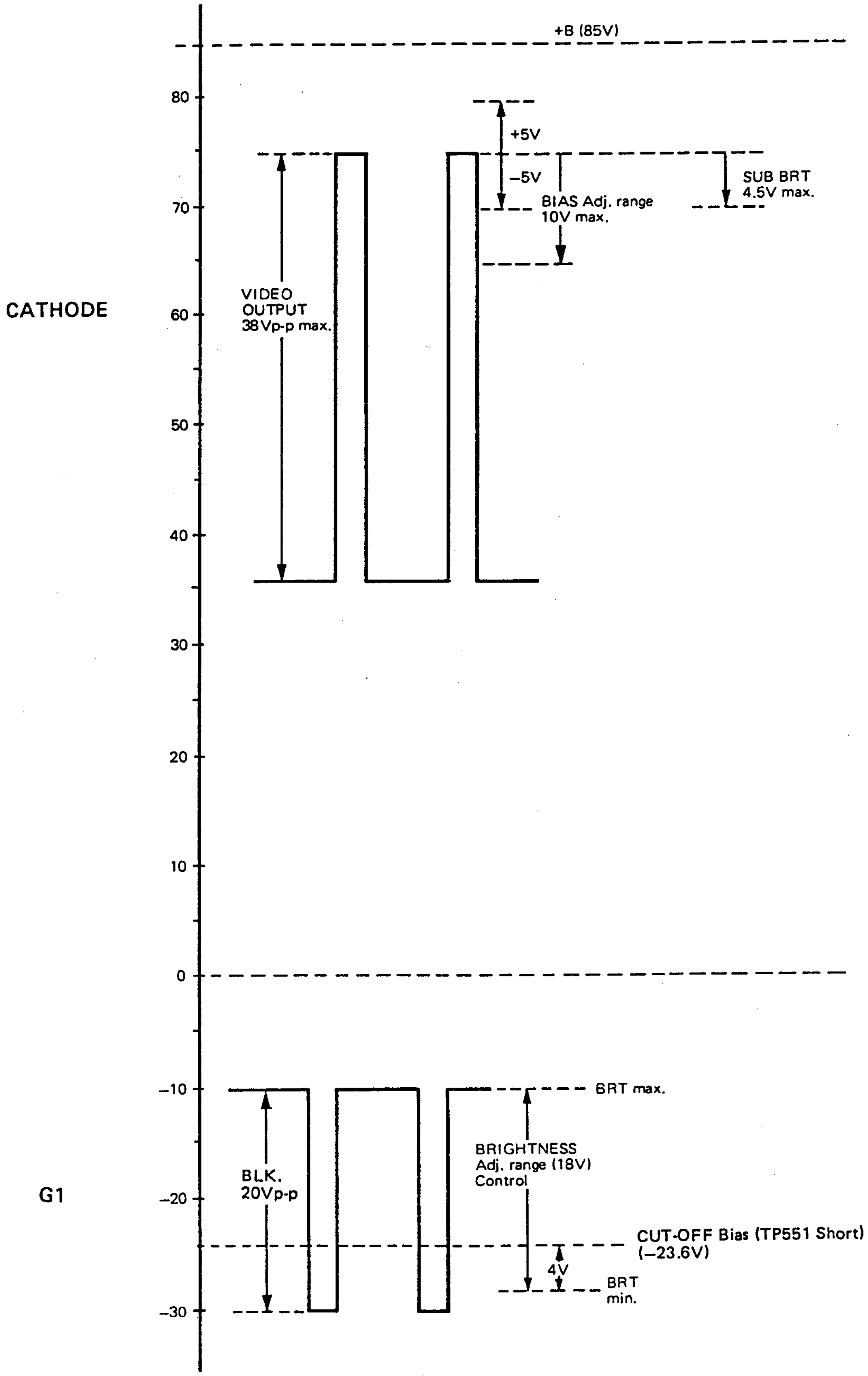
The video pre-amplifier consists of the pre-amp IC901 (M51387), the gain control, the bias control circuit, the sub-brightness control circuit, and the contrast control circuit.

This pre-amplifier has two function. The first is to control the video signal output level by the gain, the contrast, and sub-brightness controls. After the gain and the contrast controls have been adjusted, the video signals output levels at the CRT cathodes are 38 Vp-p for the contrast control at the maximum position and 10 Vp-p for the contrast control at the minimum position.

For the TTL video signal mode, the contrast control and the video pre-amp gain are fixed and can not be adjusted.

The second function is the alignment of the cut-off for the CRT by the adjustment of the Bais and Sub-Brightness controls. By adjusting these controls properly, the raster color will be white for any position of the Brightness control (the Sub-Brightness control is controlled by the Brightness control).

(Fig. 2-4-2) CRT G1-Cathode Bias Condition


+B (85V)
80
70
60
50
40
30
20
10
0
–10
–20
–30
CATHODE
G1
+5V
–5V
BIAS Adj. range
10V max.
SUB BRT
4.5V max.
VIDEO
OUTPUT
38Vp-p max.
BRT max.
BLK.
20Vp-p
BRIGHTNESS
Adj. range (18V)
Control
CUT-OFF Bias (TP551 Short)
(–23.6V)
4V
BRT
min.

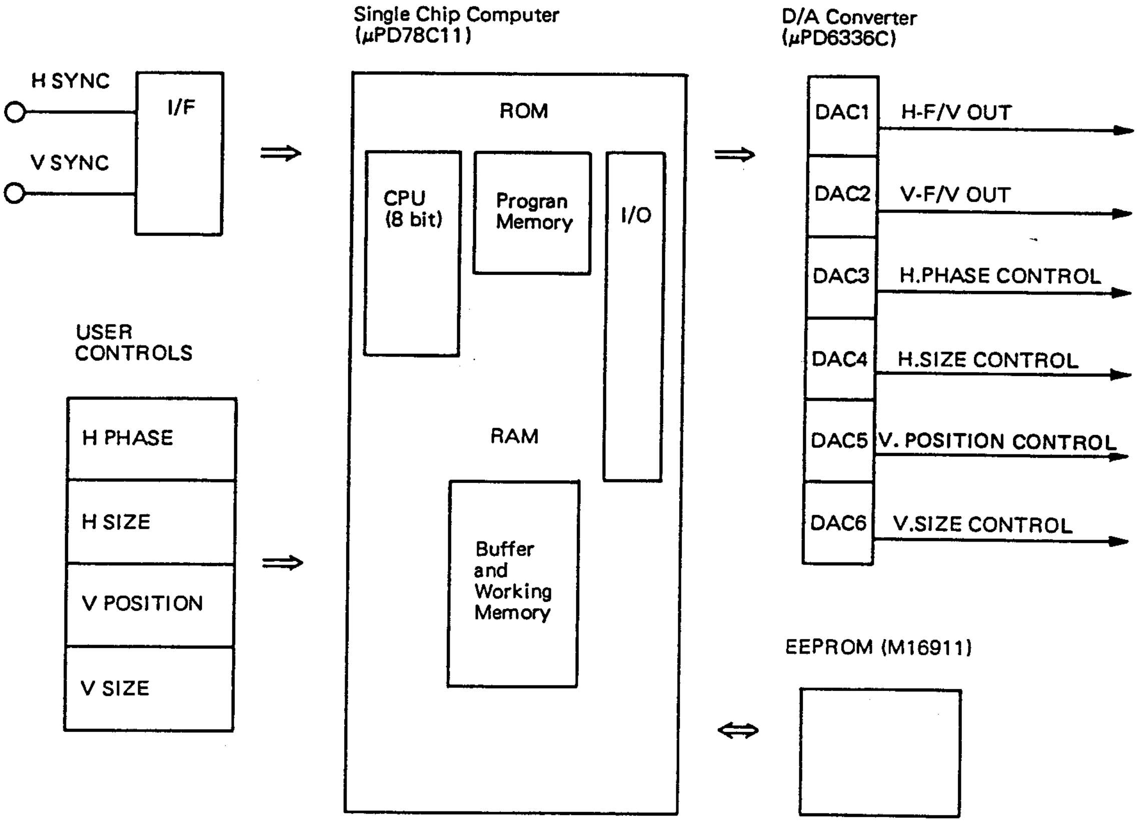
(2-5) Digital Control Circuit

(2-5-1) Digital Control Unit

Digital Control System

- Automatic Synchronization
- Management of displaying proper picture
  - Automatic signal identification
  - Automatic Sizing
  - Automatic Centering
  - Management of Picture Data
- Management of user controls
- Management of factory Adjustment

(Fig. 2-5-1) The BLOCK DIAGRAM of Digital Control System


Single Chip Computer
(μPD78C11)
D/A Converter
(μPD6336C)
H SYNC
V SYNC
I/F
ROM
CPU
(8 bit)
Progran
Memory
I/O
RAM
Buffer
and
Working
Memory
USER
CONTROLS
H PHASE
H SIZE
V POSITION
V SIZE
DAC1
H-F/V OUT
DAC2
V-F/V OUT
DAC3
H.PHASE CONTROL
DAC4
H.SIZE CONTROL
DAC5
V. POSITION CONTROL
DAC6
V.SIZE CONTROL
EEPROM (M16911)

1. Automatic Synchronization

The monitor automatically Syncs to the following frequency range.

Fh: 15.5 kHz to 38.0 kHz
Fv: 50.0 Hz to 90.0 Hz

The CPU counts the horizontal pulses during a given period of time and vertical period. After these measurements, the corresponding digital data are produced and converted by the DAC to analog voltage. This combination of the CPU and DAC produce frequency to voltage (F/V) converter. The analog voltage is used as the control signal for the automatic synchronizing circuitry.

2. Automatic Display

a. Automatic signal identification

The CPU checks the input signal (TTL or ANALOG video, separate or composite SYNC, SYNC polarity, and etc.) and automatically identifies this input signal.
*See the Fig. 2-5-2 for the Signal Identification Flowchart.

b. Automatic centering and sizing

After the CPU identifies the input signal, the CPU send the stored digital data from the corresponding memory block in the EE-PROM. The EE-PROM has several memory blocks which consist of the control data for horizontal and vertical, centering and sizing. The control data is converted to the analog voltage by the DAC and is used by control signal.
The EE-PROM data is adjusted for the several standard signals (see Fig. 2-5-4) at the factory to get the optimum video display area. When the end user connects a standard signal (i.e. VGA. EGA etc.), the monitor will automatically display the suitably sized and centered video raster.

c. User controls

The user can change the control data (display size and location) by pushing the proper user control bottons. After a few seconds, the CPU will automatically store data in the EE-PROM. The user can reset the data of the memory area and recall the initial data.
In case the user has a 3rd party's compatible board, small adjustments by the user control bottons may be needed at the initial start up. This data information is again stored in the memory. No adjustments are necessary after initial start up, if the same video signal is re-used.
In case a completely different video signal is applied to the monitor, the CPU will identify the signal and select a memory block accordingly. If the display size and location are not satisfactory, the user can adjust the display and after 5 seconds the CPU will again store the control data into the memory.

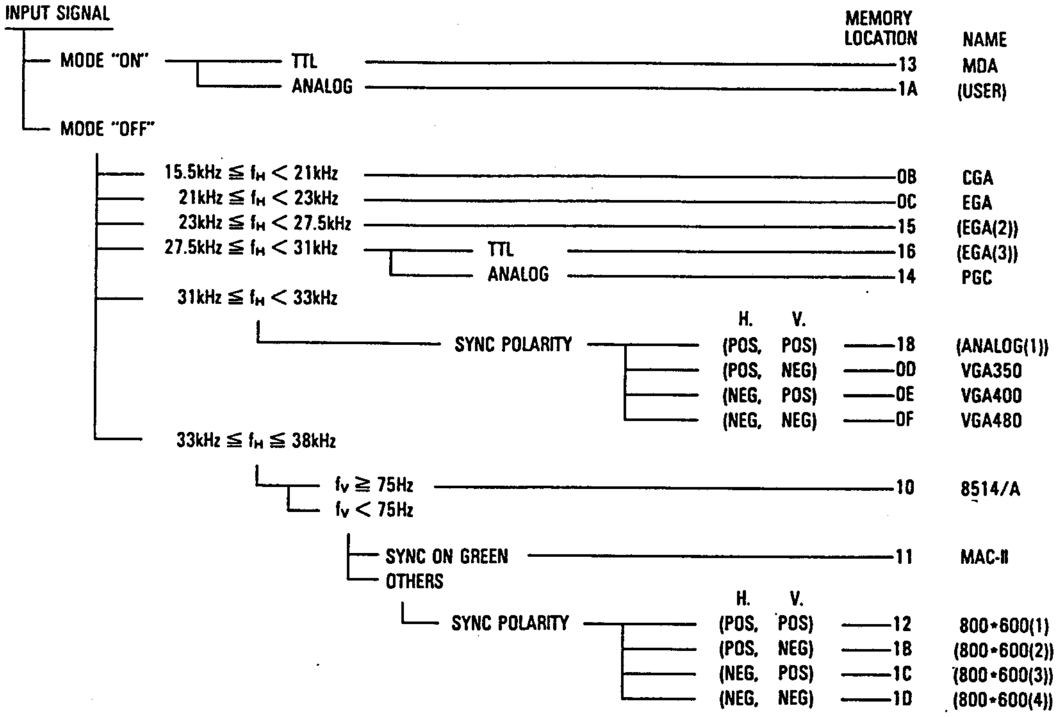
d. Factory Adjustment

In order to simplify the display adjustments, the CPU has the PRESET factory data in its ROM. At the beginning of the adjustment process, the CPU writes the PRESET factory data from the ROM to the buffer RAM and then outputs them to the D/A converter. Then, the monitor is roughly adjusted for the display size and location.
The fine adjustments are then made by adjusting the user controls by the factory personnel.
*Final adjustment process for the display size and location.

1. Prepare for the adjustment mode by shorting TP151 and TP152. The CPU applies the PRESET factory data to the buffer RAM and then to the D/A converter.

2. Adjust the active video area to the center and the specified size by pushing the user control buttons changing the data of the buffer RAM.
3. Store these control data to the EE-PROM by pushing the memory recall button.

(Fig. 2-5-2) SIGNAL IDENTIFICATION FLOWCHART of the MultiSync 3D


INPUT SIGNAL
MEMORY LOCATION
NAME
MODE "ON"
TTL
13
MDA
ANALOG
1A
(USER)
MODE "OFF"
15.5kHz ≦ fH < 21kHz
0B
CGA
21kHz ≦ fH < 23kHz
0C
EGA
23kHz ≦ fH < 27.5kHz
15
(EGA(2))
27.5kHz ≦ fH < 31kHz
TTL
16
(EGA(3))
ANALOG
14
PGC
31kHz ≦ fH < 33kHz
SYNC POLARITY
H.
V.
(POS, POS)
18
(ANALOG(1))
(POS, NEG)
0D
VGA350
(NEG, POS)
0E
VGA400
(NEG, NEG)
0F
VGA480
33kHz ≦ fH ≦ 38kHz
fV ≧ 75Hz
10
8514/A
fV < 75Hz
SYNC ON GREEN
11
MAC-II
OTHERS
SYNC POLARITY
H.
V.
(POS, POS)
12
800*600(1)
(POS, NEG)
1B
(800*600(2))
(NEG, POS)
1C
(800*600(3))
(NEG, NEG)
1D
(800*600(4))

(Fig. 2-5-3) METHOD OF SIGNAL IDENTIFICATION

MEMORY LOCATION	TTL/ANALOG 0: ANALOG 1: TTL	H.S.POLARITY 0: POS 1: NEG	V.S.POLARITY 0: POS 1: NEG	H. SYNC 0: NO SYNC 1: AVAILABLE	V. SYNC 0: NO SYNC 1: AVAILABLE	MODE 0: OFF 1: ON	f_H Band Select*	f_V Band Select		NAME
								50 75	90	
0B	X	X	X	X	X	0	i	○		CGA
0C	X	X	X	X	X	0	ii	○		EGA
0D	X	0	1	X	X	0	v	○		VGA 350
0E	X	1	0	X	X	0	v	○		VGA 400
0F	X	1	1	X	X	0	v	○		VGA 480
10	X	X	X	X	X	0	vi		○	8514A
11	X	X	X	0	0	0	vi	○		MAC-II (ANALOG/ SYNC. ON G
12	X	0	0	1	1	0	vi	○		800 x 600(1)
13	1	X	X	X	X	1	X	○		MDA
14	0	X	X	X	X	0	iv	○		PGC (ANALOG CS f_H<31kHz)
15	X	X	X	X	X	0	iii	○		EGA (2)
16	1	X	X	X	X	0	iv	○		EGA (3)
18	X	0	0	X	X	0	v	○		ANALOG (1)
1A	0	X	X	X	X	1	x	○		USER SELECT SELECTABLE
1B	X	0	1	1	1	0	vi	○		800 x 600(2)
1C	X	1	0	1	1	0	vi	○		800 x 600(3)
1D	X	1	1	1	1	0	vi	○		800 x 600(4)

* i: 15.5kHz $\leqq f_H <$ 21kHz
ii: 21kHz $\leqq f_H <$ 23kHz
iii: 23kHz $\leqq f_H <$ 27.5kHz
iv: 27.5kHz $\leqq f_H <$ 31kHz
v: 31kHz $\leqq f_H <$ 33kHz
vi: 33kHz $\leqq f_H \leqq$ 38kHz

(Fig. 2-5-4) EE-PROM MEMORY MAP

Memory type: 128 word x 8 bit (1k byte)
SERIAL EE-PROM

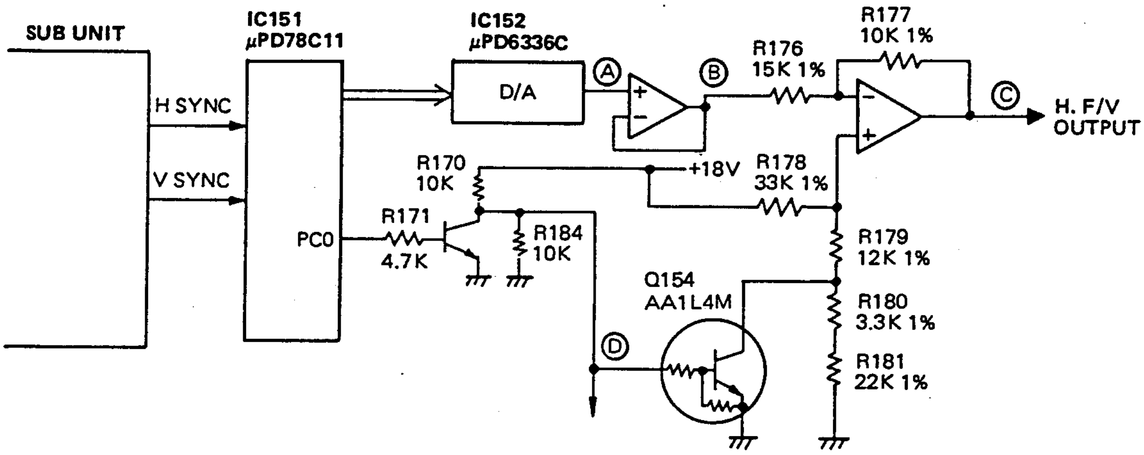
Address

MEMORY Block-LOCATION	NAME	H PHASE	H SIZE	V POSITION	V SIZE	
01	CGA	00	01	02	03	Factory set data for the standard SIGNALS (Back up memory data stored in the ROM) Can be changed only by the service person
02	EGA	04	05	06	07	
03	VGA 350	08	09	0A	0B	
04	VGA 400	0C	0D	0E	0F	
05	VGA 480	10	11	12	13	
06	8514A	14	15	16	17	
07	MAC-II	18	19	1A	1B	
08	800 x 600	1C	1D	1E	1F	
09	MDA	20	21	22	23	
0A	PGC	24	25	26	27	
	(INITIAL DATA)					
0B	CGA	30	31	32	33	Pre-set to the same data as memory blocks locations 01 to 0A by the factory and can be changed by user controls. These data can be reset to the initial data by using the standard data load switch.
0C	EGA	34	35	36	37	
0D	VGA 350	38	39	3A	3B	
0E	VGA 400	3C	3D	3E	3F	
0F	VGA 480	40	41	42	43	
10	8514A	44	45	46	47	
11	MAC-II	48	49	4A	4B	
12	800 x 600(1)	4C	4D	4E	4F	
13	MDA	50	51	52	53	
14	PGC	54	55	56	57	
15	EGA (2)	58	59	5A	5B	Can be changed only by the user controls
16	EGA (3)	5C	5D	5E	5F	
18	ANALOG (1)	64	65	66	67	
1A	USER SELECTABLE	6C	6D	6E	6F	
1B	800 x 600(2)	70	71	72	73	
1C	800 x 600(3)	74	75	76	77	
1D	800 x 600(4)	78	79	7A	7B	

EGA (2): $23\text{kHz} \leqq f_H < 27.5\text{kHz}$
EGA (3): $27.5\text{kHz} \leqq f_H < 31\text{kHz}$, TTL
ANALOG (1): $31\text{kHz} \leqq f_H < 33\text{kHz}$, H-SYNC POSITIVE, and V-SYNC POSITIVE

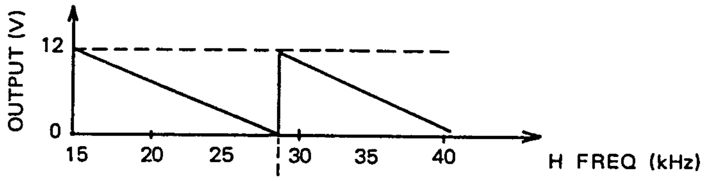
(2-5-2) H F/V Converter

1. BLOCK DIAGRAM

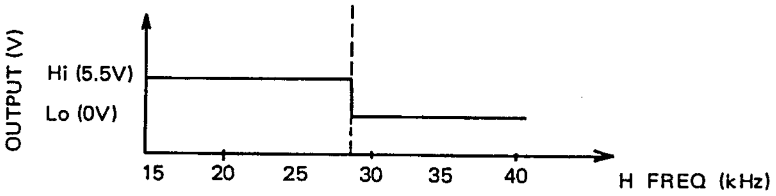

SUB UNIT
IC151
µPD78C11
IC152
µPD6336C
D/A
H SYNC
V SYNC
PCO
Ⓐ
Ⓑ
Ⓒ
Ⓓ
R170
10K
R171
4.7K
R184
10K
+18V
R176
15K 1%
R177
10K 1%
R178
33K 1%
R179
12K 1%
R180
3.3K 1%
R181
22K 1%
Q154
AA1L4M
H. F/V
OUTPUT

(Fig. 2-5-5) BLOCK DIAGRAM of H F/V Converter

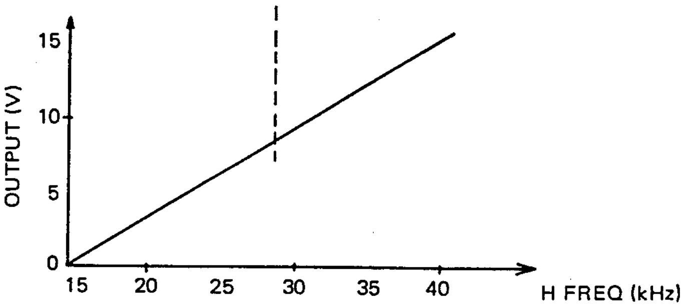
2. Relationship between voltage and horizontal frequency



(Fig. 2-5-6) Relationship between Points Ⓐ and Ⓑ

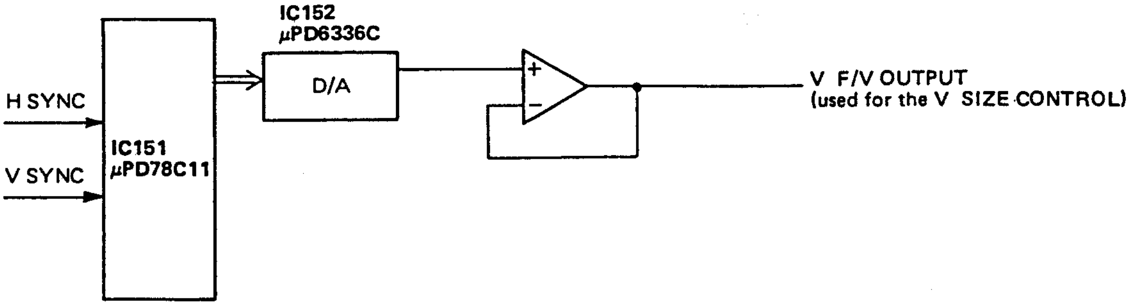


(Fig. 2-5-6) Relationship between Point Ⓓ and H. Frequency

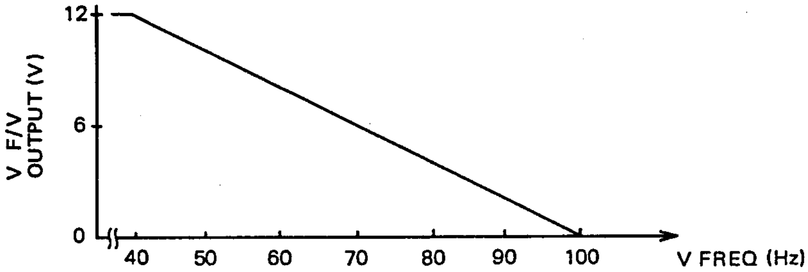


(Fig. 2-5-7) H F/V Output (Point Ⓒ)

(2-5-3) V-F/V converter


H SYNC
V SYNC
IC151
μPD78C11
IC152
μPD6336C
D/A
+
−
V F/V OUTPUT
(used for the V SIZE CONTROL)

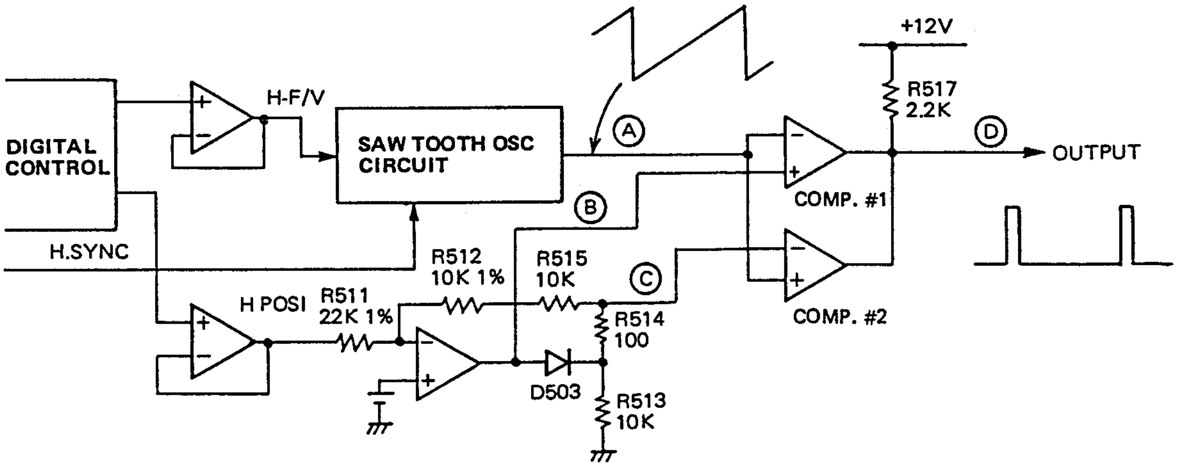
(Fig. 2-5-8) BLOCK DIAGRAM of V F/V converter



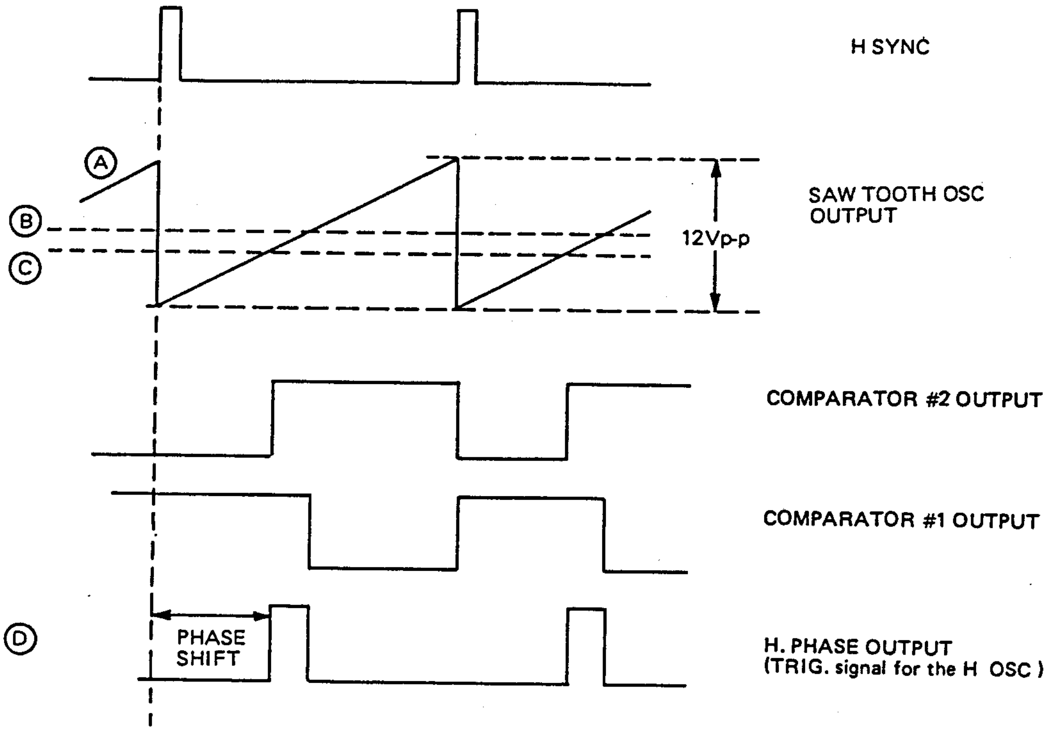
(Fig. 2-5-9) Relationship between output voltage and V Frequency

(2-5-4) H Phase circuit

1. BLOCK DIAGRAM

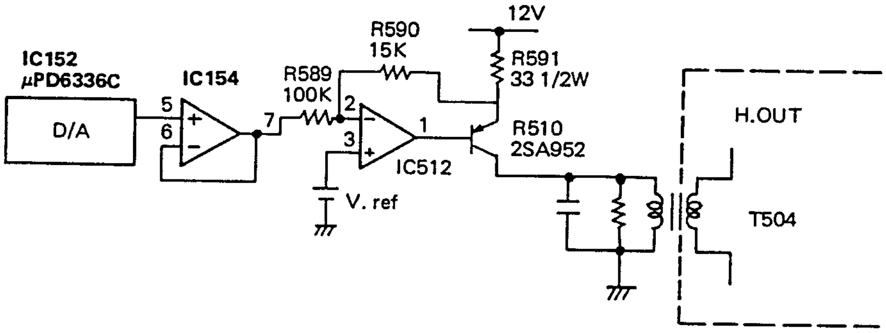

DIGITAL
CONTROL
H-F/V
SAW TOOTH OSC
CIRCUIT
H.SYNC
H POSI
R511
22K 1%
R512
10K 1%
R515
10K
R514
100
D503
R513
10K
Ⓐ
Ⓑ
Ⓒ
Ⓓ
+12V
R517
2.2K
COMP. #1
COMP. #2
OUTPUT

(Fig. 2-5-10) BLOCK DIAGRAM of the H Phase Circuit



(Fig. 2-5-11) Voltage Waveform

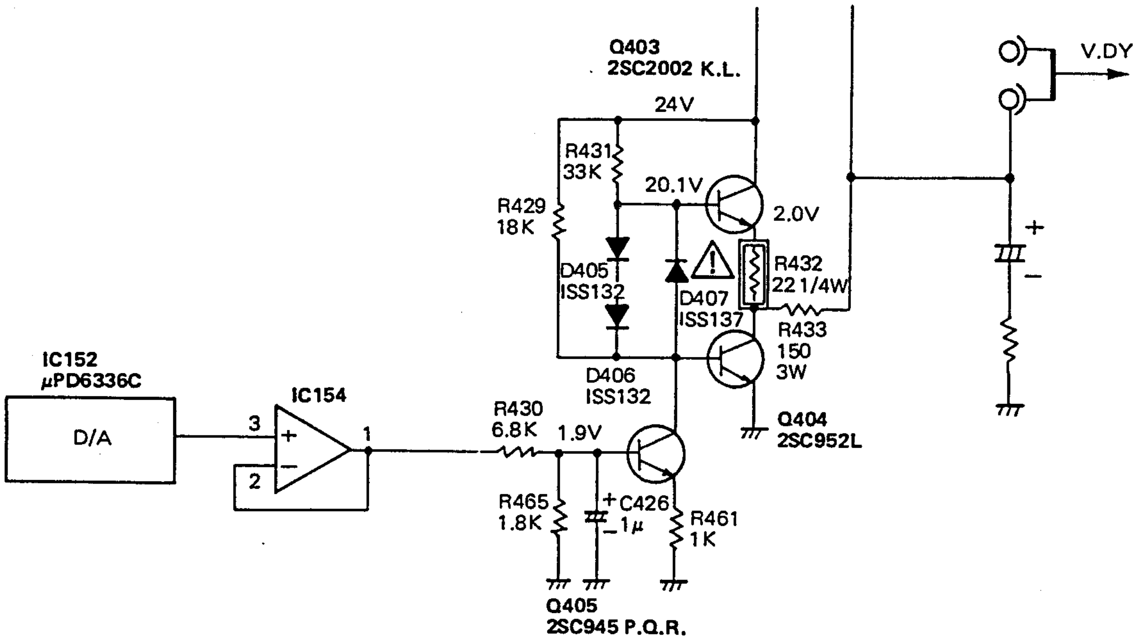
(2-5-5) H Size Circuit


IC152
μPD6336C
D/A
IC154
5
6
7
R589
100K
R590
15K
12V
R591
33 1/2W
2
3
1
IC512
V. ref
R510
2SA952
H.OUT
T504

(Fig. 2-5-12) BLOCK DIAGRAM of the SIZE CIRCUIT

The H size control voltage (IC154 pin 7) controls the DC bias level of Q510 and the primary current of T504. The primary current of T504 controls the secondary coil induction value. So, the H size signal modulates the Horizontal D.Y current, i.e. the H size of the raster.

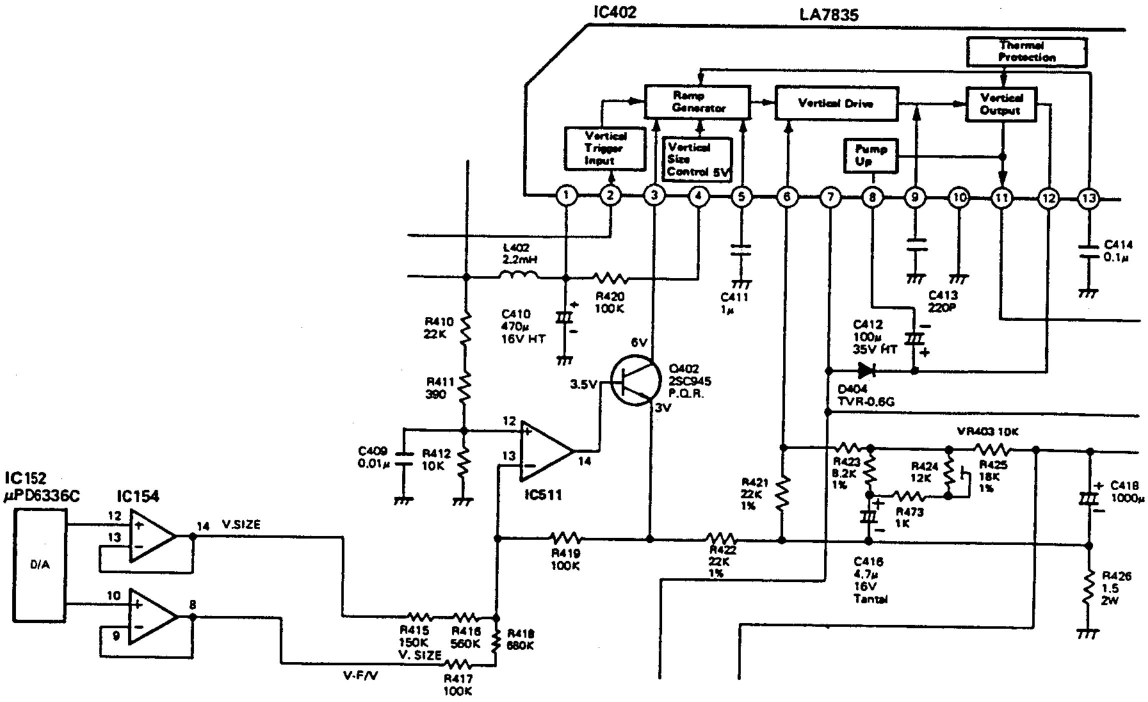
(2-5-6) V Position Circuit


Q403
2SC2002 K.L.
24V
R431
33K
20.1V
R429
18K
2.0V
D405
ISS132
D407
ISS137
R432
22 1/4W
R433
150
3W
D406
ISS132
Q404
2SC952L
IC152
μPD6336C
D/A
IC154
3
+
1
2
−
R430
6.8K
1.9V
R465
1.8K
C426
1μ
R461
1K
Q405
2SC945 P.Q.R.
V.DY
+
−

(Fig. 2-5-13) BLOCK DIAGRAM of V POSITION CIRCUIT

The V position control voltage (IC154 pin 1) manipulates the push-pull transistor's (Q403 and Q404) output DC level and also the V DY DC biasing current.

(2-5-7) V Size Circuit


IC402
LA7835
Thermal Protection
Ramp Generator
Vertical Drive
Vertical Output
Vertical Trigger Input
Vertical Size Control 5V
Pump Up
1
2
3
4
5
6
7
8
9
10
11
12
13
C414 0.1μ
L402 2.2mH
R420 100K
C411 1μ
C413 220P
R410 22K
C410 470μ 16V HT
C412 100μ 35V HT
6V
R411 390
3.5V
Q402 2SC945 P.Q.R.
3V
D404 TVR-0.6G
12
13
14
IC511
C409 0.01μ
R412 10K
VR403 10K
R423 8.2K 1%
R424 12K
R425 18K 1%
R421 22K 1%
R473 1K
C418 1000μ
IC152 μPD6336C
IC154
D/A
12
13
14
V.SIZE
10
9
8
R419 100K
R422 22K 1%
C416 4.7μ 16V Tantal
R426 1.5 2W
R415 150K
R416 560K
V. SIZE
R418 680K
V-F/V
R417 100K

(Fig. 2-5-14) BLOCK DIAGRAM of V SIZE CIRCUIT

The vertical raster size is controlled by the sink current of IC402 pin 3 (collecter current of Q402). Therefore, it can be controlled by changing the DC base voltage of Q402. The parameters which decide the vertical video size are the vertical frequency and the signal timing.

To keep a constant vertical raster size, the V F/V (IC154 pin 8) output signal controls the Q402 base voltage. And, to also keep this vertical raster size constant for the pre-set signals, the V size control voltage (IC154 pin 14) controls the base voltage of Q402.

NOTE: V linearity VR (VR403) has been added from parts number of MAIN PWB ASSY (PWE-294) is 72502942. (for JC-1404HMN)

REPLACEMENT PARTS LIST

The components specified for Models JC-1404HME-1/EE-1

Notes: 1. The components identified by ⚠ mark are critical for safety.
Replace only with parts Number specified.
2. Parts identified with ** are United Kingdom made parts.

SYMBOL	PARTS NO	DESCRIPTION
*** CRT & TUNER ***		
⚠	33014172	CRT M34KBG23XX193(7)
*** ICS ***		
IC156	37052179	IC SN74LS07N
IC508	37053122	MOS UPD74HC123AC
IC152	37053266	MOS UPD6336C (D/A CONVERT
IC153	37055216	EEPROM MSM16911RS E-094
IC901	37056245	IC M51387P
⚠IC401	37056408	IC HA11423DP-18
IC402	37056415	IC LA7835
IC155 IC157 IC502 IC507 IC512	37056583	IC LM358N
IC101 IC501 IC510	37056584	IC LM339N
IC154 IC509 IC511	37056585	IC LM324N
IC403	37056618	IC BA6110
IC151	37056741	MOS UPD78C11G-252-36
IC801	37056421	MOS PCZ80-40
IC802	37051179	IC SN74LS123N(MONO MLT)
IC803	37051096	IC SN74LS367AN(BUFF)
IC804 IC805	37052011	IC SN74LS136N(EX-OR)
IC806	37053294	MOS UPD74HC04C
IC807	37053241	MOS UPD74HC86C
IC808	37053122	MOS UPD74HC123AC
*** TRANSISTORS ***		
Q151 Q152 Q153 ⚠Q2002 Q401 Q402 Q405 Q502 Q503 Q504 Q506 Q509 ⚠Q514 ⚠Q516 Q517 Q520 Q525 Q526 Q531 Q532 Q533 Q537 Q902 Q903 Q904	350D7217	TR 2SC945-T Q
Q403 Q406 Q530	350E3212	TR,2SC2002-T L
Q534 Q539	350H4417	TR,2SC1473-TA Q
Q910 Q912 Q914	350H5017	TR,2SC3811-TA Q
⚠Q2001 Q407 Q501 Q505 Q507 ⚠Q515 Q518 Q521 Q535 Q536 Q901 Q905 Q906 Q907 Q908 Q960 Q961	350K3517	TR 2SA733/2SA733A-T Q
Q404 Q510	350K4412	TR,2SA952 L,AT
Q538	350K5217	TR,2SA1018-TA Q
Q563	35025516	TR,2SB744 P
Q562	35065416	TR,2SD882 P
Q527	35068112	TR 2SD986 L

SYMBOL	PARTS NO	DESCRIPTION
*** TRANSISTORS ***		
⚠Q523	35082401	TR 2SC3486-YB
Q909 Q911 Q913	35086004	TR,2SC3953-RA D
Q154	351G0531	TR AA1L4M-T
Q161 Q962	351G0601	TR,DTC114ES-T
Q522	35121900	TR 2SK752
Q806	35053212	TR,2SC2002L
Q511 Q512 Q513	35122100	TR 2SK703
Q524	35122200	TR 2SK854
Q519	35122500	TR 2SK758
Q508	35122600	TR 2SK701
*** DIODES ***		
D101 D102 D103 D104 D105 D106 D107 D108 D109 D110 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D151 D152 D153 D155 ⚠D2003 ⚠D2004 ⚠D2005 ⚠D2006 D401 D405 D406 D407 D408 D409 D410 D502 D503 D507 D508 D510 D511 D512 D513 D517 D518 D520 D521 D524 D525 D530 D533 D564 D901 D902 D912	360K1027	DIODE 1SS132
D526 D528 D529 D531 D532 D903 D904 D905 D906 D907 D908 D910 D911	360K1032	DIODE 1SS82-TA
ZD401 ZD520	360K3123	DIODE RD20EB(3)
ZD501	360K3134	DIODE RD15EB(2)-T4
⚠ZD2001 ⚠ZD2002	360K3143	DIODE,RD8.2JSB(1)-T4
⚠ZD502 ZD506 ZD512	360K3160	DIODE RD8.2EB(2)-T4
ZD511	360K3169	DIODE RD6.2EB(2)-T4
⚠ZD503 ⚠ZD504 ZD507	360K3188	DIODE RD3.9EB(2)-T4
D404 D506 D527 D560 D561	361K7160	RECTIFIER,SI. TVR-06G G23
⚠D2001 ⚠D2002	361K7562	DIODE EGP10G G23
D514 D515 D516	36107160	RECTIFIER,SI. TVR-06G
D509	36107293	RECTIFIER,SI. RK14
D519	36107518	RECTIFIER,SI. RG2
⚠D522	36107530	DIODE RS4FS
ZD505	367K0017	DIODE RD4.7EB-T4
D550	36801023	DIODE,LIGHT-E SEL1320G
TH401	38102017	THERMISTOR,TD-230

SYMBOL	PARTS NO	DESCRIPTION
*** TRANSFORMERS ***		
T502	45803010	TRANS,H.DRIVE
T501	46302102	TRANS FERRITE
T506	46304105	FERRITE TRANS
⚠T505	47105649	F.B.T.
⚠T503	47502060	TRANS
*** VARIABLE RESISTORS ***		
VR101 VR102	41011211	R,VARIABLE B10K-V
VR904	41071160	R,VARIABLE B3.3K
VR901 VR902 VR903	41071161	R,VARIABLE B4.7K
VR906 VR908 VR910		
VR905 VR907 VR909	41071165	R,VARIABLE B22K
VR403	41071213	R,VARIABLE B10K
VR505	41085006	R,VARIABLE B2K
VR501 VR502	41085009	R,VARIABLE B10K
VR503	41085010	R,VARIABLE B20K
VR402	41085059	R,VARIABLE B10K
⚠VR2001 ⚠VR2002 ⚠VR504	41505005	R,VARIABLE B2K
*** RELAYS & SWITCHES ***		
SW110	65161045	SWITCH,SLIDE
SW111	65161046	SWITCH,SLIDE
⚠	65260002	SWITCH,SEE-SAW
SW101 SW102 SW103	65360016	SWITCH,PUSH BUTTON
SW104 SW105 SW106		
SW107 SW108 SW109	65360016	SWITCH,PUSH BUTTON
RL801	65602551	RELAY G5A-237P
RL802	65699012	RELAY RY12W(2T)
*** COILS & FILTERS ***		
LC901	390J9015	FILTER ZJSC-2R2-101TA
T504	60906202	WIDTH CHOKE
⚠L503	60908043	COIL,VARIABLE WIDTH
⚠L504	60918111	COIL,H.LIN 4TERMINAL
L902 L904 L906	610E1708	COIL,FILTER,L1R8K,BT(S)
L901 L903 L905	610E1712	COIL,FILTER 3.9UH
L151 L907	610E1714	COIL,FILTER 5.6UH
L152	610E1719	COIL,FILTER 15UH
L508	610F7514	COIL,FILTER 5.6UH
⚠	61062076	POWER LINE FILTER
L502	61064006	COIL,FILTER 50UH
L401 L402	61064051	COIL,FILTER 2200UH
L507	61067005	COIL,FILTER 1.0UH
L506	61070127	FILTER CHOKC
L505	61070128	COIL,CHOKE
L801 L802	61051709	COIL,FILTER L2R2KBS
L501	61099019	COIL,CHOKE
⚠DEG	61314212	COIL,DEGAUSSING
LC902	61606022	NOIZE FILTER DSS-222M
*** PWB ASSYS ***		
	84L50C01	VIDEO CRT PWB ASSY
	84L50D01	MAIN PWB ASSY
	**31102018	SW. REG. UNIT (SMP-93AB-1)
	79100011	SUB PWB UNIT

SYMBOL	PARTS NO	DESCRIPTION
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***		
HS402	31709202	SHEET,INSULATOR
HS523	31709503	SHEET,INSULATOR
SG901 SG902 SG903	32990047	ARRESTER
SG904		
•X151	64098029	X'TAL 12.000MHZ
SG905	667K7001	SPARK GAP 1.2KV
⚠	70032026	SG/CRT SOCKET
(JC-1404HME-1)	70800039	LINE CORD
(JC-1404HMEE-1)	70800323	LINE, POWER
	73893081	CABLE, SIGNAL
	**70599113	ADAPTER 9P-15P K
	70599130	ADAPTER 15P-15P J
	74004891	CAP
*** APPEARANCE PARTS ***		
	24514792	COIL SPRING
	**25310471	CABINET FRONT ASSY
	**25310493	CABINET BACK ASSY
	**25409732	REVOLVING STAND ASSY
	**25409751	SPINDLE
	**25310673	CABINET BOTTOM ASSY
	**25757643	LABEL(REV.)
	24283101	LATCH
	**25411401	LID, CONTROL ASSY
(JC-1404HME-1)	**25771511	NEME PLATE INSTRUCTION
(JC-1404HMEE-1)	**25771521	NEME PLATE INSTRUCTION
*** KNOBS & PUSH BUTTONS ***		
	25452771	KNOB,CONTROL
	25452791	KNOB,SLIDE
	25452911	KNOB(A),SLIDE
	25452921	PUSH BUTTON
*** PRINTED & PACKING MATERIALS ***		
(JC-1404HME-1)	24806961	BAG,POLYETHYLENE(270*370)
	24813191	BAG,POLYETHYLENE(150*370)
	25603711	FOOT,RUBBER
	25804551	BAG,POLYETHYLENE(150*230)
	**25816341	FILLER,CARTON(T)
	**25816351	FILLER(B)CARTON
	**78124191	INSTRUCTION BOOK
	25804991	BAG, POLYETHYLENE(85*110)
(JC-1404HMEE-1)	25815061	BAG, POLYETHYLENE(270*370)
(JC-1404HME-1)	**25820241	CARTON BOX
(JC-1404HMEE-1)	**25820251	CARTON BOX
	**78034404	MONITOR SALES OFFICE LIST
	599910301	S/M JC-1404HMN/E-1/EE-1/ED-1

SYMBOL			PARTS NO	DESCRIPTION
*** RESISTORS ***				
R938	R942	R946	401C6639	R.CARBON 39H 5% 1/4W
R937	R941	R945	401C6646	R.CARBON 75H 5% 1/4W
R1B3	R5C0		401C6673	R.CARBON 1.0K 5% 1/4W
R5E2	R527		401C6681	R.CARBON 2.2K 5% 1/4W
R5B8	R594	R596	401C6685	R.CARBON 3.3K 5% 1/4W
R598				
R5E9			401H5601	R.CARBON 1.0H 5% 1/2W
R5B5			401H5603	R.CARBON 1.2H 5% 1/2W
R591			401H5637	R.CARBON 33H 5% 1/2W
R459	R956	R957	401H5649	R.CARBON 100H 5% 1/2W
R958	R967			
R5C8			401H5679	R.CARBON 1.8K 5% 1/2W
R5B4	R5D9		401H5681	R.CARBON 2.2K 5% 1/2W
R959			401H5689	R.CARBON 4.7K 5% 1/2W
R5B9	R595	R597	401K5637	R.CARBON 33H 5% 1/6W
R599			401K5637	R.CARBON 33H 5% 1/6W
R5A0			401K5643	R.CARBON 56H 5% 1/6W
R514	R968	R969	401K5649	R.CARBON 100H 5% 1/6W
R970				
R923	R927	R932	401K5651	R.CARBON 120H 5% 1/6W
R935	R939	R943	401K5653	R.CARBON 150H 5% 1/6W
R537	R901	R902	401K5657	R.CARBON 220H 5% 1/6W
R903				
R411			401K5663	R.CARBON 390H 5% 1/6W
R151	R5E6	R936	401K5665	R.CARBON 470H 5% 1/6W
R940	R944			
R5D8	⚠R583		401K5667	R.CARBON 560H 5% 1/6W
R111	R5C7		401K5669	R.CARBON 680H 5% 1/6W
R1A0	R1A1	R1A2	401K5673	R.CARBON 1.0K 5% 1/6W
R1A3	R1A4	R1A5		
R1A6	R110	R152		
R153	R154	R155		
R156	R157	R158		
R172	R173	R174		
R175	R440	R456		
R461	R472	R473		
R5D0	R5F3	R507		
R541	R551	⚠R582		
R907	R908	R913		
R915				
R460	R966		401K5675	R.CARBON 1.2K 5% 1/6W
R471	R502		401K5677	R.CARBON 1.5K 5% 1/6W
R465	R949		401K5679	R.CARBON 1.8K 5% 1/6W
R403	R408	R448	401K5681	R.CARBON 2.2K 5% 1/6W
R466	R5B3	R5E5		
R5F0	R517	R518		
R524	R528	R546		
R566	R914	R955		
R971	R975			
R1B1	R1B2	R909	401K5683	R.CARBON 2.7K 5% 1/6W
R911	R952			
⚠R2004	⚠R2006	R5C3	401K5685	R.CARBON 3.3K 5% 1/6W
R538	R904	R905		
R906				
⚠R5B1	⚠R5B2	R5C6	401K5687	R.CARBON 3.9K 5% 1/6W
R918	R925	R930		

SYMBOL			PARTS NO	DESCRIPTION
*** RESISTORS ***				
R159	R167	R169	401K5689	R.CARBON 4.7K 5% 1/6W
R171	R402	R441		
R519	R522	R547		
R552	R910			
R5A2	R5A3	R531	401K5691	R.CARBON 5.6K 5% 1/6W
R543	R548	R570		
R916				
R407	R430	R434	401K5693	R.CARBON 6.8K 5% 1/6W
R5E4	R504			
⚠R2003	⚠R2005	R554	401K5695	R.CARBON 8.2K 5% 1/6W
⚠R581	R912	R963		
R1A7	R101	R102	401K5697	R.CARBON 10K 5% 1/6W
R103	R104	R105		
R106	R107	R108		
R109	R112	R113		
R114	R115	R116		
R117	R118	R119		
R120	R121	R122		
R130	R161	R163		
R164	R166	R168		
R170	R183	R184		
R195	R196	R197		
⚠R2007	⚠R2010	R409		
R412	R435	R442		
R443	R458	R5C1		
R5E8	R5F1	R513		
R515	R529	R532		
R533	R542	R545		
R549	R558	R560		
R571	R572	R574		
⚠R584	R586	R917		
R960	R962			
⚠R2009	R424	R544	401K5699	R.CARBON 12K 5% 1/6W
⚠R579	R961			
R569	R576	R577	401K5701	R.CARBON 15K 5% 1/6W
R590	R965			
R429	R455		401K5703	R.CARBON 18K 5% 1/6W
R198	R401	R410	401K5705	R.CARBON 22K 5% 1/6W
R5A4	R557	⚠R580		
R414	R445	R457	401K5707	R.CARBON 27K 5% 1/6W
R964				
R431	R5A8	R5D2	401K5709	R.CARBON 33K 5% 1/6W
R5E7	R921	R929	401K5709	R.CARBON 33K 5% 1/6W
R934				
⚠R2008			401K5711	R.CARBON 39K 5% 1/6W
R5A7	R550	R575	401K5713	R.CARBON 47K 5% 1/6W
R578				
R447	R5D6	R5E3	401K5715	R.CARBON 56K 5% 1/6W
R5A1	R5C4	R5D3	401K5717	R.CARBON 68K 5% 1/6W
R417	R419	R420	401K5721	R.CARBON 100K 5% 1/6W
R436	R437	R438		
R439	R5A6	R5A9		
R539	R540	R589		
R415	R444	R585	401K5725	R.CARBON 150K 5% 1/6W
R5C9			401K5729	R.CARBON 220K 5% 1/6W
R416	R981	R982	401K5739	R.CARBON 560K 5% 1/6W
R418			401K5741	R.CARBON 680K 5% 1/6W
R5A5	R5D5	R510	401K5745	R.CARBON 1.0M 5% 1/6W
R573				

SYMBOL			PARTS NO	DESCRIPTION
***	RESISTORS		***	
R182			40175125	R,CARBON 10H 5% 1/4W
⚠R432			40175133	R,CARBON 22H 5% 1/4W
⚠R526			40175161	R,CARBON 330H 5% 1/4W
⚠R525	⚠R59?		40178166	R,CARBON 510H 5% 1/2W
⚠R521			40178177	R,CARBON 1.5K 5% 1/2W
R5E0			40371135	R,METAL 27H 5% 1W
R5E1			40371143	R,METAL 56H 5% 1W
R426			40372105	R,METAL 1.5H 5% 2W
R555			40372169	R,METAL 680H 5% 2W
R567			40373123	R,METAL 8.2H 5% 3W
R433			40373153	R,METAL 150H 5% 3W
R5B6			40373167	R,METAL 560H 5% 3W
R5B7			40373169	R,METAL 680H 5% 3W
R948	R954		40399037	R,METAL 390H 5% 3W
R947	R950	R951	40399038	R,METAL 470H 5% 3W
R953				
R972	R974		40399039	R,METAL 180H 5% 1W
R973			40399040	R,METAL 100H 5% 1W
R530	R922	R926	404C1673	R,METAL 1.0K 1% 1/6W
R931				
R924	R928	R933	404C1675	R,METAL 1.2K 1% 1/6W
R919			404C1679	R,METAL 1.8K 1% 1/6W
R452	R474	R587	404C1683	R,METAL 2.7K 1% 1/6W
R180	R449		404C1685	R,METAL 3.3K 1% 1/6W
R506	R565		404C1687	R,METAL 3.9K 1% 1/6W
R501	R564		404C1691	R,METAL 5.6K 1% 1/6W
R920			404C1693	R,METAL 6.8K 1% 1/6W
R423	R534		404C1695	R,METAL 8.2K 1% 1/6W
R177	R453	R509	404C1697	R,METAL 10K 1% 1/6W
R512				
R179	R406	R535	404C1699	R,METAL 12K 1% 1/6W
R176			404C1701	R,METAL 15K 1% 1/6W
R425			404C1703	R,METAL 18K 1% 1/6W
R181	R405	R421	404C1705	R,METAL 22K 1% 1/6W
R422	R446	R503		
R511				
R404	R508	R561	404C1707	R,METAL 27K 1% 1/6W
R178	R588		404C1709	R,METAL 33K 1% 1/6W
R562			404C1711	R,METAL 39K 1% 1/6W
R505			404C1717	R,METAL 68K 1% 1/6W
R451			404C1733	R,METAL 330K 1% 1/6W
R185			404C1735	R,METAL 390K 1% 1/6W
R559			404C1737	R,METAL 470K 1% 1/6W
R454			404C1739	R,METAL 560K 1% 1/6W
R563			404C1745	R,METAL 1.0M 1% 1/6W
R427			404K3658	R,METAL 240H 1% 1/2W
⚠R2001	⚠R2002	⚠R5C2	40405109	R,METAL 2.2H 5% 1/4W
⚠R5D1	⚠R553	R568		
⚠R536			40405137	R,METAL 33H 5% 1/4W
⚠R520			40405149	R,METAL 100H 5% 1/4W

SYMBOL			PARTS NO	DESCRIPTION
***	CAPACITORS		***	
C559	C570		420C9551	C,CERAMIC 500V 100PF
C577			420C9557	C,CERAMIC 500V 330PF
C547	C591		420C9560	C,CERAMIC 500V 560PF
C560			420C9563	C,CERAMIC 500V 0.001UF
C571			420C9567	C,CERAMIC 500V 2200PF
C173	C174	C404	420J9069	C,CERAMIC 50V 0.1UF
C414	C420	C599		
C927	C929	C931	4203J571	C,CERAMIC 500V 4700PF
C933			42040108	C,CERAMIC 2KV 0.01UF
C101	C153	C154	421A0425	C,CERAMIC 50V 0.01UF
C155	C156	C157		
C158	C169	C171	421A0425	C,CERAMIC 50V 0.01UF
C172	C175	C176		
C177	C178	C179		
C180	C181	C406		
C409	C425	C430		
C543	C553	C567		
C568	C569	C573		
C574	C575	C579		
C580	C581	C585		
C908	C909	C910		
C911	C935			
C501			421C0208	C,CERAMIC 50V 390PF
C152	C554		421C0213	C,CERAMIC 50V 1000PF
C592			421C0217	C,CERAMIC 50V 0.0022UF
⚠C528			421C0701	C,CERAMIC 50V 100PF
C160	C164	C557	421J9001	C,CERAMIC 50V 0.1UF
C572	C904	C907		
C916	C917	C918		
C919	C920	C922		
C925	C934			
C162	C163		423A1015	C,CERAMIC 50V 10PF
C151	C403		423A1045	C,CERAMIC 50V 100PF
C583			423A1047	C,CERAMIC 50V 120PF
C921	C923	C926	423A1051	C,CERAMIC 50V 180PF
C413			423A1053	C,CERAMIC 50V 220PF
C502	C513		427A7005	C,FILM 100V 0.0022UF
⚠C529	C584		427F4001	C,FILM 50V 1000PF
C530			427F4010	C,FILM 50V 5600PF
C524	C538		427F4013	C,FILM 50V 0.01UF
C417			427F4017	C,FILM 50V 0.022UF
C431			427F4021	C,FILM 50V 0.047UF
C539	C541		427F4025	C,FILM 50V 0.1UF
C523			427F4051	C,FILM 50V 1000PF
C402			427F4057	C,FILM 50V 3300PF
C514			427F4058	C,FILM 50V 3900PF
C508			427F4059	C,FILM 50V 4700PF
C510			427F4065	C,FILM 50V 0.015UF
C509	C516		427F4071	C,FILM 50V 0.047UF
C562			42754163	C,FILM 100V 0.01UF
C555			42754207	C,FILM 200V 0.01UF
C544			42754267	C,FILM 200V 0.022UF
C548			42754470	C,FILM 400V 0.039UF
C506	C507		4276H325	CQ93P1H102JW

SYMBOL	PARTS NO	DESCRIPTION
*** CAPACITORS	***	
C401 C411	4282C025	C,METAL FILM 50V 1UF
⚠C549	42842506	C,METAL 1600V 7800PF
⚠C552	42842507	C,METAL 400V 0.025UF
⚠C533	42843501	C,FILM 200V 0.82UF
⚠C534	42843508	C,METAL 200V 0.47UF
⚠C532	42843509	C,METAL 400V 0.12UF
⚠C535	42899014	C,METAL FILM 400V 0.39UF
C545	430B3051	C,ELEC 16V 220UF
C522	430B3071	C,ELEC 25V 220UF
⚠C2002	430B3091	C ELEC 35V 220UF
C928 C930 C932	430B3182	C,ELEC 160V 1UF
C565	430B3187	C,ELEC 160V 22UF
C912	430B5051	C,ELEC 16V 220UF
C410	430B5053	C,ELEC 16V 470UF
C419	430B5107	C,ELEC 50V 22UF
⚠C2003 ⚠C2004	430B6015	C,ELEC 10V 47UF
C505	430B6016	C,ELEC 10V 100UF
C512	430B6017	C,ELEC 10V 220UF
C161 ⚠C526	430B6039	C,ELEC 25V 22UF
C517	430B6041	C,ELEC 25V 47UF
C561	430B6053	C,ELEC 35V 47UF
C595	430B6055	C,ELEC 35V 220UF
C426 C520 ⚠C527	430B6061	C,ELEC 50V 1UF
C598		
C542 C546	430B6062	C,ELEC 50V 2.2UF
C518	430B6065	C,ELEC 50V 10UF
C540	430B6066	C,ELEC 50V 22UF
C556 C558	430B6068	C,ELEC 50V 47UF
C159 C519	430B9017	C,ELEC 10V 220UF
C421 C424	430B9026	C,ELEC 16V 22UF
C422 C563 C901	430B9028	C,ELEC 16V 47UF
C902 C903 C924		
C531 C906	430B9029	C,ELEC 16V 100UF
⚠C2001 C564	430B9053	C,ELEC 35V 47UF
C412 C415	430B9054	C,ELEC 35V 100UF
C593	430B9061	C,ELEC 50V 1UF
C913 C914 C915	430B9062	C,ELEC 50V 2.2UF
C536	430B9556	C,ELEC 250V 10UF
C183	430C0043	C,ELEC 16V 10UF
C166 C167	430C0045	C,ELEC 16V 22UF
C165	430C0077	C,ELEC 50V 1UF
C525	430C2344	C,ELEC 16V 470UF
C407 C408	430C6024	C,ELEC 16V 220UF
C594	4302J516	C,ELEC 160V 10UF
C537	43041013	C,ELEC 160V 100UF
C418	43099146	C,ELEC 50V 1000UF
C905	4339J031	C,ELEC 35V 4.7UF
C515	435A8307	C,TANTALM 35V 1UF

REPLACEMENT PARTS LIST

The components specified for Model JC-1404HMED-1

Notes: 1. The components identified by ⚠ mark are critical for safety.
Replace only with parts Number specified.
2. Parts identified with ** are United Kingdom made parts.

*** CRT & TUNER ***

SYMBOL	PARTS NO	DESCRIPTION
⚠	33014168	CRT M34KBG23XX204

*** ICS ***

SYMBOL	PARTS NO	DESCRIPTION
IC156	37052179	IC SN74LS07N
IC508	37053122	MOS UPD74HC123AC
IC152	37053266	MOS UPD6336C (D/A CONVERT
IC153	37055216	EEPROM MSM16911RS E-094
IC901	37056245	IC M51387P
⚠IC401	37056408	IC HA11423DP-18
IC402	37056415	IC LA7835
IC155 IC157 IC502 IC507 IC512	37056583	IC LM358N
IC101 IC501 IC510	37056584	IC LM339N
IC154 IC509 IC511	37056585	IC LM324N
IC403	37056618	IC BA6110
IC151	37056741	MOS UPD78C11G-252-36
IC801	37056421	MOS PCZ80-4U
IC802	37051179	IC SN74LS123N(MONO MLT)
IC803	37051096	IC SN74LS367AN(BUFF)
IC804 IC805	37052011	IC SN74LS136N(EX-OR)
IC806	37053294	MOS UPD74HC04C
IC807	37053241	MOS UPD74HC86C
IC808	37053122	MOS UPD74HC123AC

*** TRANSISTORS ***

SYMBOL	PARTS NO	DESCRIPTION
Q151 Q152 Q153 ⚠Q2002 Q401 Q402 Q405 Q502 Q503 Q504 Q506 Q509 ⚠Q514 ⚠Q516 Q517 Q520 Q525 Q526 Q531 Q532 Q533 Q537 Q902 Q903 Q904	350D7217	TR 2SC945-T Q
Q403 Q406 Q530	350E3212	TR,2SC2002-T L
Q534 Q539	350H4417	TR,2SC1473-TA Q
Q910 Q912 Q914	350H5017	TR,2SC3811-TA Q
⚠Q2001 Q407 Q501 Q505 Q507 ⚠Q515 Q518 Q521 Q535 Q536 Q901 Q905 Q906 Q907 Q908 Q960 Q961	350K3517	TR 2SA733/2SA733A-T Q
Q404 Q510	350K4412	TR,2SA952 L,AT
Q538	350K5217	TR,2SA1018-TA Q
Q563	35025516	TR,2SB744 P
Q562	35065416	TR,2SD882 P
Q527	35068112	TR 2SD986 L

*** TRANSISTORS ***

SYMBOL	PARTS NO	DESCRIPTION
⚠Q523	35082401	TR 2SC3486-YB
Q909 Q911 Q913	35086004	TR,2SC3953-RA D
Q154	351G0531	TR AA1L4M-T
Q161 Q962	351G0601	TR,DTC114ES-T
Q522	35121900	TR 2SK752
Q806	35053212	TR,2SC2002L
Q511 Q512 Q513	35122100	TR 2SK703
Q524	35122200	TR 2SK854
Q519	35122500	TR 2SK758
Q508	35122600	TR 2SK701

*** DIODES ***

SYMBOL	PARTS NO	DESCRIPTION
D101 D102 D103 D104 D105 D106 D107 D108 D109 D110 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D151 D152 D153 D155 ⚠D2003 ⚠D2004 ⚠D2005 ⚠D2006 D401 D405 D406 D407 D408 D409 D410 D502 D503 D507 D508 D510 D511 D512 D513 D517 D518 D520 D521 D524 D525 D530 D533 D564 D901 D902 D912	360K1027	DIODE 1SS132
D526 D528 D529 D531 D532 D903 D904 D905 D906 D907 D908 D910 D911	360K1032	DIODE 1SS82-TA
ZD401 ZD520	360K3123	DIODE RD20EB(3)
ZD501	360K3134	DIODE RD15EB(2)-T4
⚠ZD2001 ⚠ZD2002	360K3143	DIODE,RD8.2JSB(1)-T4
⚠ZD502 ZD506 ZD512	360K3160	DIODE RD8.2EB(2)-T4
ZD511	360K3169	DIODE RD6.2EB(2)-T4
⚠ZD503 ⚠ZD504 ZD507	360K3188	DIODE RD3.9EB(2)-T4
D404 D506 D527 D560 D561	361K7160	RECTIFIER,SI. TVR-06G G23
⚠D2001 ⚠D2002	361K7562	DIODE EGP10G G23
D514 D515 D516	36107160	RECTIFIER,SI. TVR-06G
D509	36107293	RECTIFIER,SI. RK14
D519	36107518	RECTIFIER,SI. RG2
⚠D522	36107530	DIODE RS4FS
ZD505	367K0017	DIODE RD4.7EB-T4
D550	36801023	DIODE,LIGHT-E SEL1320G
TH401	38102017	THERMISTOR,TD-230

SYMBOL	PARTS NO	DESCRIPTION

*** TRANSFORMERS ***

SYMBOL	PARTS NO	DESCRIPTION
T502	45803010	TRANS,H.DRIVE
T501	46302102	TRANS FERRITE
T506	46304105	FERRITE TRANS
⚠T505	47105649	F.B.T.(Q)
⚠T503	47502060	TRANS

*** VARIABLE RESISTORS ***

SYMBOL	PARTS NO	DESCRIPTION
VR101 VR102	41011211	R,VARIABLE B10K-V
VR904	41071160	R,VARIABLE B3.3K
VR901 VR902 VR903 VR906 VR908 VR910	41071161	R,VARIABLE B4.7K
VR905 VR907 VR909	41071165	R,VARIABLE B22K
VR403	41071213	R,VARIABLE B10K
VR505	41085006	R,VARIABLE B2K
VR501 VR502	41085009	R,VARIABLE B10K
VR503	41085010	R,VARIABLE B20K
VR402	41085059	R,VARIABLE B10K
⚠VR2001 ⚠VR2002 ⚠VR504	41505005	R,VARIABLE B2K

*** RELAYS & SWITCHES ***

SYMBOL	PARTS NO	DESCRIPTION
SW110	65161045	SWITCH,SLIDE
SW111	65161046	SWITCH,SLIDE
⚠	65260002	SWITCH,SEE-SAW
SW101 SW102 SW103 SW104 SW105 SW106	65360016	SWITCH,PUSH BUTTON
SW107 SW108 SW109	65360016	SWITCH,PUSH BUTTON
RL801	65602551	RELAY G5A-237P
RL802	65699012	RELAY RY12W(2T)

*** COILS & FILTERS ***

SYMBOL	PARTS NO	DESCRIPTION
LC901	390J9015	FILTER ZJSC-2R2-101TA
T504	60906202	WIDTH CHOKE
⚠L503	60908043	COIL,VARIABLE WIDTH
⚠L504	60918111	COIL,H.LIN 4TERMINAL
L902 L904 L906	610E1708	COIL,FILTER,L1R8K,BT(S)
L901 L903 L905	610E1712	COIL,FILTER 3.9UH
L151 L907	610E1714	COIL,FILTER 5.6UH
L152	610E1719	COIL,FILTER 15UH
L508	610F7514	COIL,FILTER 5.6UH
⚠	61062076	POWER LINE FILTER
L502	61064006	COIL,FILTER 50UH
L401 L402	61064051	COIL,FILTER 2200UH
L507	61067005	COIL,FILTER 1.0UH
L506	61070127	FILTER CHOKC
L505	61070128	COIL,CHOKE
L801 L802	61051709	COIL,FILTER L2R2KBS
L501	61099019	COIL,CHOKE
⚠DEG	61314212	COIL,DEGAUSSING
LC902	61606022	NOIZE FILTER DSS-222M

*** PWB ASSYS ***

SYMBOL	PARTS NO	DESCRIPTION
	84L44C01	VIDEO-CRT PWB ASSY
	84L44D01	MAIN PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION

*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***

SYMBOL	PARTS NO	DESCRIPTION
HS402	31709202	SHEET,INSULATOR
HS523	31709503	SHEET,INSULATOR
SG901 SG902 SG903 SG904	32990047	ARRESTER
X151	64098029	X'TAL 12.000MHZ
SG905	667K7001	SPARK GAP 1.2KV
	70032026	SG/CRT SOCKET
	70800039	LINE CORD
CN-RH CN-RH1 CN-RH2 CN-RH3	73721003	CONNECTOR PIN 2P
CN-L	73729006	CONNECTOR,2P
	73893081	CABLE, SIGNAL
	**70599113	ADAPTER 9P-15P K
	70599130	ADAPTER 15P-15P J
	74004891	CAP

*** APPEARANCE PARTS ***

SYMBOL	PARTS NO	DESCRIPTION
	24514792	COIL SPRING
	**25310471	CABINET FRONT ASSY
	**25310493	CABINET BACK ASSY
	**25310673	CABINET BOTTOM ASSY
	**25409732	REVOLVING STAND ASSY
	**	
	**25409751	SPINDLE
	25757643	LABEL(REV.)
	**24283101	LATCH
	**25411401	LID, CONTROL ASSY
	**25771341	NEME PLATE INSTRUCTION

*** KNOBS & PUSH BUTTONS ***

SYMBOL	PARTS NO	DESCRIPTION
	25452771	KNOB,CONTROL
	25452791	KNOB,SLIDE
	25452911	KNOB(A),SLIDE
	25452921	PUSH BUTTON

*** PRINTED & PACKING MATERIALS ***

SYMBOL	PARTS NO	DESCRIPTION
	24806961	BAG,POLYETHYLENE(270*370)
	24813191	BAG,POLYETHYLENE(150*370)
	25603711	FOOT,RUBBER
	25804551	BAG,POLYETHYLENE(150*230)
	25804991	BAG,POLYETHYLENE (85*110)
	**25816341	FILLER,CARTON(T)
	**25816351	FILLER(B)CARTON
	**78124191	INSTRUCTION BOOK
	**25820121	CARTON BOX
	**78034404	MONITOR SALES OFFICE LIST
	599910301	S/M JC-1404HMN/E-1/EE-1/ED-1

*** RESISTORS ***

SYMBOL			PARTS NO	DESCRIPTION
R938	R942	R946	401C6639	R.CARBON 39H 5% 1/4W
R937	R941	R945	401C6646	R.CARBON 75H 5% 1/4W
R1B3	R5C0		401C6673	R.CARBON 1.0K 5% 1/4W
R5E2	R527		401C6681	R.CARBON 2.2K 5% 1/4W
R5B8	R594	R596	401C6685	R.CARBON 3.3K 5% 1/4W
R598				
R5E9			401H5601	R.CARBON 1.0H 5% 1/2W
R5B5			401H5603	R.CARBON 1.2H 5% 1/2W
R591			401H5637	R.CARBON 33H 5% 1/2W
R459	R956	R957	401H5649	R.CARBON 100H 5% 1/2W
R958	R967			
R5C8			401H5679	R.CARBON 1.8K 5% 1/2W
R5B4	R5D9		401H5681	R.CARBON 2.2K 5% 1/2W
R959			401H5689	R.CARBON 4.7K 5% 1/2W
R5B9	R595	R597	401K5637	R.CARBON 33H 5% 1/6W
R599			401K5637	R.CARBON 33H 5% 1/6W
R5A0			401K5643	R.CARBON 56H 5% 1/6W
R514	R968	R969	401K5649	R.CARBON 100H 5% 1/6W
R970				
R923	R927	R932	401K5651	R.CARBON 120H 5% 1/6W
R935	R939	R943	401K5653	R.CARBON 150H 5% 1/6W
R537	R901	R902	401K5657	R.CARBON 220H 5% 1/6W
R903				
R411			401K5663	R.CARBON 390H 5% 1/6W
R151	R5E6	R936	401K5665	R.CARBON 470H 5% 1/6W
R940	R944			
R5D8	⚠R583		401K5667	R.CARBON 560H 5% 1/6W
R111	R5C7		401K5669	R.CARBON 680H 5% 1/6W
R1A0	R1A1	R1A2	401K5673	R.CARBON 1.0K 5% 1/6W
R1A3	R1A4	R1A5		
R1A6	R110	R152		
R153	R154	R155		
R156	R157	R158		
R172	R173	R174		
R175	R440	R456		
R461	R472	R473		
R5D0	R5F3	R507		
R541	R551	⚠R582		
R907	R908	R913		
R915				
R460	R966		401K5675	R.CARBON 1.2K 5% 1/6W
R471	R502		401K5677	R.CARBON 1.5K 5% 1/6W
R465	R949		401K5679	R.CARBON 1.8K 5% 1/6W
R403	R408	R448	401K5681	R.CARBON 2.2K 5% 1/6W
R466	R5B3	R5E5		
R5F0	R517	R518		
R524	R528	R546		
R566	R914	R955		
R971	R975			
R1B1	R1B2	R909	401K5683	R.CARBON 2.7K 5% 1/6W
R911	R952			
⚠R2004	⚠R2006	R5C3	401K5685	R.CARBON 3.3K 5% 1/6W
R538	R904	R905		
R906				
⚠R5B1	⚠R5B2	R5C6	401K5687	R.CARBON 3.9K 5% 1/6W
R918	R925	R930		

*** RESISTORS ***

SYMBOL			PARTS NO	DESCRIPTION
R159	R167	R169	401K5689	R.CARBON 4.7K 5% 1/6W
R171	R402	R441		
R519	R522	R547		
R552	R910			
R5A2	R5A3	R531	401K5691	R.CARBON 5.6K 5% 1/6W
R543	R548	R570		
R916				
R407	R430	R434	401K5693	R.CARBON 6.8K 5% 1/6W
R5E4	R504			
⚠R2003	⚠R2005	R554	401K5695	R.CARBON 8.2K 5% 1/6W
⚠R581	R912	R963		
R1A7	R101	R102	401K5697	R.CARBON 10K 5% 1/6W
R103	R104	R105		
R106	R107	R108		
R109	R112	R113		
R114	R115	R116		
R117	R118	R119		
R120	R121	R122		
R130	R161	R163		
R164	R166	R168		
R170	R183	R184		
R195	R196	R197		
⚠R2007	⚠R2010	R409		
R412	R435	R442		
R443	R458	R5C1		
R5E8	R5F1	R513		
R515	R529	R532		
R533	R542	R545		
R549	R558	R560		
R571	R572	R574		
⚠R584	R586	R917		
R960	R962			
⚠R2009	R424	R544	401K5699	R.CARBON 12K 5% 1/6W
⚠R579	R961			
R569	R576	R577	401K5701	R.CARBON 15K 5% 1/6W
R590	R965			
R429	R455		401K5703	R.CARBON 18K 5% 1/6W
R198	R401	R410	401K5705	R.CARBON 22K 5% 1/6W
R5A4	R557	⚠R580		
R414	R445	R457	401K5707	R.CARBON 27K 5% 1/6W
R964				
R431	R5A8	R5D2	401K5709	R.CARBON 33K 5% 1/6W
R5E7	R921	R929	401K5709	R.CARBON 33K 5% 1/6W
R934				
⚠R2008			401K5711	R.CARBON 39K 5% 1/6W
R5A7	R550	R575	401K5713	R.CARBON 47K 5% 1/6W
R578				
R447	R5D6	R5E3	401K5715	R.CARBON 56K 5% 1/6W
R5A1	R5C4	R5D3	401K5717	R.CARBON 68K 5% 1/6W
R417	R419	R420	401K5721	R.CARBON 100K 5% 1/6W
R436	R437	R438		
R439	R5A6	R5A9		
R539	R540	R589		
R415	R444	R585	401K5725	R.CARBON 150K 5% 1/6W
R5C9			401K5729	R.CARBON 220K 5% 1/6W
⚠R2011			401K5731	R.CARBON 270K 5% 1/6W
R416	R981	R982	401K5739	R.CARBON 560K 5% 1/6W
R418			401K5741	R.CARBON 680K 5% 1/6W
R5A5	R5D5	R510	401K5745	R.CARBON 1.0M 5% 1/6W
R573				

*** RESISTORS ***

SYMBOL	PARTS NO	DESCRIPTION
R182	40175125	R,CARBON 10H 5% 1/4W
⚠R432	40175133	R,CARBON 22H 5% 1/4W
⚠R526	40175161	R,CARBON 330H 5% 1/4W
⚠R525 ⚠R592	40178166	R,CARBON 510H 5% 1/2W
⚠R521	40178177	R,CARBON 1.5K 5% 1/2W
R5E0	40371135	R,METAL 27H 5% 1W
R5E1	40371143	R,METAL 56H 5% 1W
R426	40372105	R,METAL 1.5H 5% 2W
R555	40372169	R,METAL 680H 5% 2W
R567	40373123	R,METAL 8.2H 5% 3W
R433	40373153	R,METAL 150H 5% 3W
R5B6	40373167	R,METAL 560H 5% 3W
R5B7	40373169	R,METAL 680H 5% 3W
R972 R974	40399039	R,METAL 180H 5% 1W
R973	40399040	R,METAL 100H 5% 1W
R948 R954	40399045	R,METAL 390H 5% 3W
R947 R950 R951	40399046	R,METAL 470H 5% 3W
R973	40399040	R,METAL 100H 5% 1W
R530 R922 R926	404C1673	R,METAL 1.0K 1% 1/6W
R931		
R924 R928 R933	404C1675	R,METAL 1.2K 1% 1/6W
R919	404C1679	R,METAL 1.8K 1% 1/6W
R452 R474 R587	404C1683	R,METAL 2.7K 1% 1/6W
R180 R449	404C1685	R,METAL 3.3K 1% 1/6W
R506 R565	404C1687	R,METAL 3.9K 1% 1/6W
R501 R564	404C1691	R,METAL 5.6K 1% 1/6W
R920	404C1693	R,METAL 6.8K 1% 1/6W
R423 R534	404C1695	R,METAL 8.2K 1% 1/6W
R177 R453 R509	404C1697	R,METAL 10K 1% 1/6W
R512		
R179 R406 R535	404C1699	R,METAL 12K 1% 1/6W
R176	404C1701	R,METAL 15K 1% 1/6W
R425	404C1703	R,METAL 18K 1% 1/6W
R181 R405 R421	404C1705	R,METAL 22K 1% 1/6W
R422 R446 R503		
R511		
R404 R508 R561	404C1707	R,METAL 27K 1% 1/6W
R178 R588	404C1709	R,METAL 33K 1% 1/6W
R562	404C1711	R,METAL 39K 1% 1/6W
R505	404C1717	R,METAL 68K 1% 1/6W
R451	404C1733	R,METAL 330K 1% 1/6W
R185	404C1735	R,METAL 390K 1% 1/6W
R559	404C1737	R,METAL 470K 1% 1/6W
R454	404C1739	R,METAL 560K 1% 1/6W
R563	404C1745	R,METAL 1.0M 1% 1/6W
R427	404K3658	R,METAL 240H 1% 1/2W
⚠R2001 ⚠R2002 ⚠R5C2	40405109	R,METAL 2.2H 5% 1/4W
⚠R5D1 ⚠R553 R568		
⚠R536	40405137	R,METAL 33H 5% 1/4W
⚠R520	40405149	R,METAL 100H 5% 1/4W

*** CAPACITORS ***

SYMBOL	PARTS NO	DESCRIPTION
C559 C570	420C9551	C,CERAMIC 500V 100PF
C577	420C9557	C,CERAMIC 500V 330PF
C547 C591	420C9560	C,CERAMIC 500V 560PF
C560	420C9563	C,CERAMIC 500V 0.001UF
C571	420C9567	C,CERAMIC 500V 2200PF
C173 C174 C404	420J9069	C,CERAMIC 50V 0.1UF
C414 C420 C599		
C927 C929 C931	4203J571	C,CERAMIC 500V 4700PF
C933	42040108	C,CERAMIC 2KV 0.01UF
C153 C154 C155	421A0425	C,CERAMIC 50V 0.01UF
C156 C157 C158		
C169 C171 C175		
C176 C177 C178		
C179 C180 C181		
C406 C409 C425		
C430 C543 C553		
C567 C568 C569		
C573 C574 C575		
C579 C580 C581		
C585 C908 C909		
C910 C911 C935		
C501	421C0208	C,CERAMIC 50V 390PF
C152 C554	421C0213	C,CERAMIC 50V 1000PF
C592	421C0217	C,CERAMIC 50V 0.0022UF
⚠C528	421C0701	C,CERAMIC 50V 100PF
C101 C160 C164	421J9001	C,CERAMIC 50V 0.1UF
C172 C557 C572		
C904 C907 C916		
C917 C918 C919		
C920 C922 C925		
C934		
C162 C163	423A1015	C,CERAMIC 50V 10PF
C151 C403	423A1045	C,CERAMIC 50V 100PF
C583	423A1047	C,CERAMIC 50V 120PF
C921 C923 C926	423A1051	C,CERAMIC 50V 180PF
C413	423A1053	C,CERAMIC 50V 220PF
C502 C513	427A7005	C,FILM 100V 0.0022UF
⚠C529 C584	427F4001	C,FILM 50V 1000PF
C530	427F4010	C,FILM 50V 5600PF
C524 C538	427F4013	C,FILM 50V 0.01UF
C417	427F4017	C,FILM 50V 0.022UF
C431	427F4021	C,FILM 50V 0.047UF
C539 C541	427F4025	C,FILM 50V 0.1UF
C523	427F4051	C,FILM 50V 1000PF
C402	427F4057	C,FILM 50V 3300PF
C514	427F4058	C,FILM 50V 3900PF
C508	427F4059	C,FILM 50V 4700PF
C510	427F4065	C,FILM 50V 0.015UF
C509 C516	427F4071	C,FILM 50V 0.047UF
C562	42754163	C,FILM 100V 0.01UF
C555	42754207	C,FILM 200V 0.01UF
C544	42754267	C,FILM 200V 0.022UF
C548	42754470	C,FILM 400V 0.039UF
C506 C507	4276H325	CQ93P1H102JW
C401 C411	4282C025	C,METAL FILM 50V 1UF
⚠C549	42842506	C,METAL 1600V 7800PF

SYMBOL	PARTS NO	DESCRIPTION
*** CAPACITORS ***		
⚠C552	42842507	C.METAL 400V 0.025UF
⚠C533	42843501	C.FILM 200V 0.82UF
⚠C534	42843508	C.METAL 200V 0.47UF
⚠C532	42843509	C.METAL 400V 0.12UF
⚠C535	42899014	C.METAL FILM 400V 0.39UF
C545	430B3051	C.ELEC 16V 220UF
⚠C2002	430B3091	C ELEC 35V 220UF
C928 C930 C932	430B3182	C.ELEC 160V 1UF
C565	430B3187	C.ELEC 160V 22UF
C912	430B5051	C.ELEC 16V 220UF
C410	430B5053	C.ELEC 16V 470UF
C419	430B5107	C.ELEC 50V 22UF
⚠C2003 ⚠C2004	430B6015	C.ELEC 10V 47UF
C505	430B6016	C.ELEC 10V 100UF
C512	430B6017	C.ELEC 10V 220UF
C595	430B6031	C.ELEC 16V 330UF
C161 ⚠C526	430B6039	C.ELEC 25V 22UF
C517	430B6041	C.ELEC 25V 47UF
C561	430B6053	C.ELEC 35V 47UF
C426 C520 ⚠C527 C598	430B6061	C.ELEC 50V 1UF
C542 C546	430B6062	C.ELEC 50V 2.2UF
C518	430B6065	C.ELEC 50V 10UF
C540	430B6066	C.ELEC 50V 22UF
C556 C558	430B6068	C.ELEC 50V 47UF
C159 C519	430B9017	C.ELEC 10V 220UF
C421 C424	430B9026	C.ELEC 16V 22UF
C422 C563 C901 C902 C903 C924	430B9028	C.ELEC 16V 47UF
C531 C906	430B9029	C.ELEC 16V 100UF
⚠C2001 C564	430B9053	C.ELEC 35V 47UF
C412 C415	430B9054	C.ELEC 35V 100UF
C522	430B9055	C.ELEC 35V 220UF
C593	430B9061	C.ELEC 50V 1UF
C913 C914 C915	430B9062	C.ELEC 50V 2.2UF
C536	430B9556	C.ELEC 250V 10UF
C183	430C0043	C.ELEC 16V 10UF
C166 C167	430C0045	C.ELEC 16V 22UF
C165	430C0077	C.ELEC 50V 1UF
C525	430C2344	C.ELEC 16V 470UF
C407 C408	430C6024	C.ELEC 16V 220UF
C537	4302C190	C.ELEC 160V 100UF
C594	4302J516	C.ELEC 160V 10UF
C418	43099146	C.ELEC 50V 1000UF
C905	4339J031	C.ELEC 35V 4.7UF
C416	435A8153	C.TANTLM 16V 4.7UF
C515	435A8307	C.TANTALM 35V 1UF

REPLACEMENT PARTS LIST

The components specified for Model JC-1404HMN

Notes: 1. The components identified by ⚠ mark are critical for safety.
Replace only with parts Number specified.
2. Parts identified with ** are United Kingdom made parts.

SYMBOL	PARTS NO ·	DESCRIPTION
*** CRT & TUNER ***		
⚠	33014171	CRT M34KBG23XX211(T4)(2)
*** ICS ***		
IC156	37052179	IC SN74LS07N
IC508	37053122	MOS UPD74HC123AC
IC152	37053266	MOS UPD6336C (D/A CONVERT
IC153	37055216	EEPROM MSM16911RS E-094
IC901	37056245	IC M51387P
⚠IC651	37056273	IC UPC1093J
⚠IC401	37056408	IC HA11423DP-18
IC402	37056415	IC LA7835
IC155 IC157 IC502 IC507 IC512	37056583	IC LM358N
IC101 IC501 IC510	37056584	IC LM339N
IC154 IC509 IC511	37056585	IC LM324N
IC403	37056618	IC BA6110
⚠IC601	37056644	IC M51995P
IC151	37056741	MOS UPD78C11G-252-36
IC801	37056421	MOS PCZ80-40
IC802	37051179	IC SN74LS123N(MONO MLT)
IC803	37051096	IC SN74LS367AN(BUFF)
IC804 IC805	37052011	IC SN74LS136N(EX-OR)
IC806	37053294	MOS UPD74HC04C
IC807	37053241	MOS UPD74HC86C
IC808	37053122	MOS UPD74HC123AC
*** TRANSISTORS ***		
Q151 Q152 Q153 ⚠Q2002 Q401 Q402 Q405 Q502 Q503 Q504 Q506 Q509 ⚠Q514 ⚠Q516 Q517 Q520 Q525 Q526 Q531 Q532 Q533 Q537 Q902 Q903 Q904	350D7217	TR 2SC945-T Q
Q403 Q406 Q530	350E3212	TR,2SC2002-T L
Q534 Q539	350H4417	TR,2SC1473-TA Q
Q910 Q912 Q914	350H5017	TR,2SC3811-TA Q
⚠Q2001 Q407 Q501 Q505 Q507 ⚠Q515 Q518 Q521 Q535 Q536 Q901 Q905 Q906 Q907 Q908 Q960 Q961	350K3517	TR 2SA733/2SA733A-T Q
Q404 Q510	350K4412	TR,2SA952 L,AT
Q538	350K5217	TR,2SA1018-TA Q
Q563	35025516	TR,2SB744 P

SYMBOL	PARTS NO	DESCRIPTION
*** TRANSISTORS ***		
⚠Q604	35047216	TR,2SC945 P
Q562	35065416	TR,2SD882 P
Q527	35068112	TR 2SD986 L
⚠Q601	35069713	TR 2SD1581 M
⚠Q523	35082401	TR 2SC3486-YB
Q909 Q911 Q913	35086004	TR,2SC3953-RA D
Q154	351G0531	TR AA1L4M-T
Q161 Q962	351G0601	TR,DTC114ES-T
Q522	35121900	TR 2SK752
Q806	35053212	TR,2SC2002L
Q511 Q512 Q513	35122100	TR 2SK703
Q524	35122200	TR 2SK854
⚠Q603	35122220	TR 2SK872
Q519	35122500	TR 2SK758
Q508	35122600	TR 2SK701
⚠CR601	35595014	TRIAC AC10DGM
*** DIODES ***		
D101 D102 D103 D104 D105 D106 D107 D108 D109 D110 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D151 D152 D153 D155 ⚠D2003 ⚠D2004 ⚠D2005 ⚠D2006 D2010 D2011 D401 D405 D406 D407 D408 D409 D410 D502 D503 D507 D508 D510 D511 D512 D513 D517 D518 D520 D521 D524 D525 D530 D533 D564 D901 D902 D912	360K1027	DIODE 1SS132
D526 D528 D529 D531 D532 D903 D904 D905 D906 D907 D908 D910 D911	360K1032	DIODE 1SS82-TA
ZD401 ZD520	360K3123	DIODE RD20EB(3)
ZD501	360K3134	DIODE RD15EB(2)-T4
⚠ZD2001 ⚠ZD2002	360K3143	DIODE,RD8.2JSB(1)-T4
⚠ZD502 ZD506 ZD512	360K3160	DIODE RD8.2EB(2)-T4
ZD511	360K3169	DIODE RD6.2EB(2)-T4
⚠ZD503 ⚠ZD504 ZD507	360K3188	DIODE RD3.9EB(2)-T4

SYMBOL	PARTS NO	DESCRIPTION
*** DIODES ***		
△D606	36001528	DIODE,1S954
△ZD602	36003123	DIODE,RD20EB(3)
△ZD657	36003147	DIODE RD18EB(1)
△ZD603	36003614	DI RD3.0ESB(1)/ESAB(1)
△ZD601	36003684	DIODE RD16ESB (3)
△ZD658	36003707	DIODE RD27ESB (4)
D404 D506 D527 D560 D561	361K7160	RECTIFIER,SI. TVR-06G G23
△D2001 △D2002	361K7562	DIODE EGP10G G23
D514 D515 D516	36107160	RECTIFIER,SI. TVR-06G
△D603	36107174	RECTIFIER,SI. RU1P
D509	36107293	RECTIFIER,SI. RK14
△D651 △D652	36107320	DIODE FMG-G26S
△D604 △D605	36107322	DIODE EL1Z
D519	36107518	RECTIFIER,SI. RG2
△D522	36107530	DIODE RS4FS
△D601	36107585	DIODE RBV-406H
△D653	36108072	D.NETWORK D5LCA20
ZD505	367K0017	DIODE RD4.7EB-T4
D550	36801023	DIODE,LIGHT-E SEL1320G
TH401	38102017	THERMISTOR,TD-230
△TH601	38112031	THERMISTOR,POSITIVE
△PC601 △PC602	38200233	IC TLP634(NHE-LF2)
*** TRANSFORMERS ***		
T502	45803010	TRANS,H.DRIVE
T501	46302102	TRANS FERRITE
T506	46304105	FERRITE TRANS
△T601	46310407	TRANS,SWITCHING
△T505	47105660	F.B.T.(Q)
△T503	47502060	TRANS
*** VARIABLE RESISTORS ***		
VR101 VR102	41011211	R,VARIABLE B10K-V
VR904	41071160	R,VARIABLE B3.3K
VR901 VR902 VR903 VR906 VR908 VR910	41071161	R,VARIABLE B4.7K
VR905 VR907 VR909	41071165	R,VARIABLE B22K
VR403	41071213	R,VARIABLE B10K
VR505	41085006	R,VARIABLE B2K
VR501 VR502	41085009	R,VARIABLE B10K
VR503	41085010	R,VARIABLE B20K
VR402	41085059	R,VARIABLE B10K
△VR651	41505003	R,VARIABLE B500
△VR2001 △VR2002 △VR504	41505005	R,VARIABLE B2K
*** RELAYS & SWITCHES ***		
SW110	65161045	SWITCH,SLIDE
SW111	65161046	SWITCH,SLIDE
△	65260002	SWITCH,SEE-SAW
SW101 SW102 SW103 SW104 SW105 SW106	65360016	SWITCH,PUSH BUTTON

SYMBOL	PARTS NO	DESCRIPTION
*** RELAYS & SWITCHES ***		
SW107 SW108 SW109 RL801	65602551	RELAY G5A-237P
RL802	65699012	RELAY RY12W(2T)
*** COILS & FILTERS ***		
LC901	390J9015	FILTER ZJSC-2R2-101TA
T504	60906202	WIDTH CHOKE
△L503	60908062	COIL,VARIABLE
△L504	60918111	COIL,H.LIN 4TERMINAL
L902 L904 L906	610E1708	COIL,FILTER,L1R8K,BT(S)
L901 L903 L905	610E1712	COIL,FILTER 3.9UH
L151 L907	610E1714	COIL,FILTER 5.6UH
L152	610E1719	COIL,FILTER 15UH
L508	610F7514	COIL,FILTER 5.6UH
△	61062080	POWER LINE FILTER
△FL601	61062107	COIL,LINE FILTER
L502	61064006	COIL,FILTER 50UH
L401 L402	61064051	COIL,FILTER 2200UH
△L602	61065002	FERRITE BEADS
L507	61067005	COIL,FILTER 1.0UH
L506	61070127	FILTER CHOKC
L505	61070128	COIL,CHOKE
L801 L802	61051709	COIL,FILTER L2R2KBS
△L651	61099011	COIL,CHOKE 33UH
△L653	61099014	COIL,CHOKE 33UH
L501	61099019	COIL,CHOKE
△L652	61099023	FILTER,CHOKE
△L601	61099044	SHIELDING COIL 222K
DEG	61314212	COIL,DEGAUSSING
LC903	61606021	NOISE FILTER DSS-271M
LC902	61606022	NOIZE FILTER DSS-222M
*** PWB ASSYS ***		
	84L07A01	SW.REG.PWB ASSY
	84L37C01	VIDEO CRT PWB ASSY
	84L37D04	MAIN PWB ASSY
	79100011	SUB PWB UNIT
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***		
HS3	31709103	INSULATOR
HS402	31709202	SHEET,INSULATOR
HS1	31709204	SHEET,HEAT SINK
HS523	31709503	SHEET,INSULATOR
X151	64098029	X'TAL 12.000MHZ
△F601	66699018	FUSE ET T2.5A 250-S.B SOC
SG901 SG902 SG903 SG904 SG905	667K7001	SPARK GAP 1.2KV
△	70032026	SG/CRT SOCKET
	70800039	LINE CORD
	71205037	HOLDER,FUSE
CN-RH CN-RH1 CN-RH2 CN-RH3	73721003	CONNECTOR PIN 2P
CN-L	73729006	CONNECTOR,2P

SYMBOL	PARTS NO	DESCRIPTION
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***		
	73893074	CABLE,SIGNAL 15PMD-XH14P
	**70599113	ADAPTER 9P-15P K
	70599130	ADAPTER 15P-15P J
	74004891	CAP
*** APPEARANCE PARTS ***		
	**24514792	COIL SPRING
	**25310471	CABINET FRONT ASSY
	**25310493	CABINET BACK ASSY
	**25310673	CABINET BOTTOM ASSY
	25409732	REVOLVING STAND ASSY
	**25409751	SPINDLE
	**25757643	LABEL(REV.)
	24283101	LATCH
	**25411401	LID, CONTROL ASSY
	**25771041	NEME PLATE INSTRUCTION
*** KNOBS & PUSH BUTTONS ***		
	25452771	KNOB,CONTROL
	25452791	KNOB,SLIDE
	25452911	KNOB(A),SLIDE
	25452921	PUSH BUTTON
*** PRINTED & PACKING MATERIALS ***		
	24806961	BAG,POLYETHYLENE(270*370)
	24813191	BAG,POLYETHYLENE(150*370)
	25603711	FOOT,RUBBER
	25804551	BAG,POLYETHYLENE(150*230)
	25804991	BAG,POLYETHYLENE (85*110)
	**25816341	FILLER,CARTON(T)
	**25816351	FILLER(B)CARTON
	**78124191	INSTRUCTION BOOK
	**25819581	CARTON BOX
	**78034404	MONITOR SALES OFFICE LIST
	599910301	S/M JC-1404HMN/E-1/EE-1/ED-1
*** RESISTORS ***		
⚠R604 ⚠R612	401C6625	R,CARBON 10H 5% 1/4W
R938 R942 R946	401C6639	R.CARBON 39H 5% 1/4W
R937 R941 R945	401C6646	R,CARBON 75H 5% 1/4W
⚠R628	401C6657	R,CARBON 220H 5% 1/4W
R1B3 R2012 R5C0	401C6673	R,CARBON 1.0K 5% 1/4W
⚠R602		
R5E2 R527	401C6681	R,CARBON 2.2K 5% 1/4W
R5B8 R594 R596	401C6685	R,CARBON 3.3K 5% 1/4W
R598		
⚠R618	401C6697	R,CARBON 10K 5% 1/4W
⚠R660	401C6701	R,CARBON 15K 5% 1/4W
R5E9	401H5601	R,CARBON 1.0H 5% 1/2W
R5B5	401H5603	R,CARBON 1.2H 5% 1/2W
R591	401H5637	R,CARBON 33H 5% 1/2W
R459 R956 R957	401H5649	R,CARBON 100H 5% 1/2W

SYMBOL	PARTS NO	DESCRIPTION
*** RESISTORS ***		
R958 R967		
R5C8	401H5679	R.CARBON 1.8K 5% 1/2W
R5B4 R5D9	401H5681	R,CARBON 2.2K 5% 1/2W
R959	401H5689	R,CARBON 4.7K 5% 1/2W
R5B9 R595 R597	401K5637	R,CARBON 33H 5% 1/6W
R599		
R5A0	401K5643	R,CARBON 56H 5% 1/6W
R514 ⚠R663 R968	401K5649	R,CARBON 100H 5% 1/6W
R969 R970		
R923 R927 R932	401K5651	R,CARBON 120H 5% 1/6W
R935 R939 R943	401K5653	R,CARBON 150H 5% 1/6W
R2013 R537 R901	401K5657	R,CARBON 220H 5% 1/6W
R902 R903		
R411	401K5663	R,CARBON 390H 5% 1/6W
R151 R5E6 ⚠R659	401K5665	R,CARBON 470H 5% 1/6W
R936 R940 R944		
R5D8 ⚠R583	401K5667	R,CARBON 560H 5% 1/6W
R111 R5C7	401K5669	R,CARBON 680H 5% 1/6W
R1A0 R1A1 R1A2	401K5673	R,CARBON 1.0K 5% 1/6W
R1A3 R1A4 R1A5		
R1A6 R110 R152		
R153 R154 R155		
R156 R157 R158		
R172 R173 R174		
R175 R440 R456		
R461 R472 R473		
R5D0 R5F3 R507		
R541 R551 ⚠R582		
R907 R908 R913		
R915		
R460 R966	401K5675	R,CARBON 1.2K 5% 1/6W
R471 R502 ⚠R655	401K5677	R,CARBON 1.5K 5% 1/6W
⚠R656 ⚠R658		
R465 R949	401K5679	R,CARBON 1.8K 5% 1/6W
R403 R408 R448	401K5681	R,CARBON 2.2K 5% 1/6W
R466 R5B3 R5E5		
R5F0 R517 R518		
R524 R528 R546		
R566 ⚠R605 R914		
R955 R971 R975		
R1B1 R1B2 R909	401K5683	R,CARBON 2.7K 5% 1/6W
R911 R952		
⚠R2004 ⚠R2006 R5C3	401K5685	R,CARBON 3.3K 5% 1/6W
R538 R904 R905		
R906		
⚠R5B1 ⚠R5B2 R5C6	401K5687	R,CARBON 3.9K 5% 1/6W
R918 R925 R930	401K5687	R,CARBON 3.9K 5% 1/6W
R159 R167 R169	401K5689	R,CARBON 4.7K 5% 1/6W
R171 R402 R441		
R519 R522 R547		
R552 ⚠R665 R910		
R5A2 R5A3 R531	401K5691	R,CARBON 5.6K 5% 1/6W
R543 R548 R570		
R916		
R407 R430 R434	401K5693	R,CARBON 6.8K 5% 1/6W
R5E4 R504		
⚠R2003 ⚠R2005 R554	401K5695	R,CARBON 8.2K 5% 1/6W

*** RESISTORS ***

SYMBOL	PARTS NO	DESCRIPTION
△R581 R912 R963 R1A7 R101 R102 R103 R104 R105 R106 R107 R108 R109 R112 R113 R114 R115 R116 R117 R118 R119 R120 R121 R122 R130 R161 R163 R164 R166 R168 R170 R183 R184 R195 R196 R197 △R2007 △R2010 R409 R412 R435 R442 R443 R458 R5C1 R5E8 R5F1 R513 R515 R529 R532 R533 R542 R545 R549 R558 R560 R571 R572 R574 △R584 R586 △R623 R917 R960 R962	401K5697	R,CARBON 10K 5% 1/6W
△R2009 R424 R544 △R579 △R625 △R626 R961 R569 R576 R577 R590 △R621 R965 R429 R455 R198 R401 R410 R5A4 R557 △R580 △R619 R414 R445 R457 R964	401K5699 401K5701 401K5703 401K5705 401K5707	R,CARBON 12K 5% 1/6W R,CARBON 15K 5% 1/6W R,CARBON 18K 5% 1/6W R,CARBON 22K 5% 1/6W R,CARBON 27K 5% 1/6W
R431 R5A8 R5D2 R5E7 △R622 R921 R929 R934 △R2008 R5A7 R550 R575 R578 R447 R5D6 R5E3 R5A1 R5C4 R5D3	401K5709 401K5711 401K5713 401K5715 401K5717	R,CARBON 33K 5% 1/6W R,CARBON 39K 5% 1/6W R,CARBON 47K 5% 1/6W R,CARBON 56K 5% 1/6W R,CARBON 68K 5% 1/6W
R417 R419 R420 R436 R437 R438 R439 R5A6 R5A9 R539 R540 R589 △R615 R415 R444 R585 R5C9 △R2011 R416 R981 R982	401K5721 401K5725 401K5729 401K5731 401K5739	R,CARBON 100K 5% 1/6W R,CARBON 150K 5% 1/6W R,CARBON 220K 5% 1/6W R,CARBON 270K 5% 1/6W R,CARBON 560K 5% 1/6W
R418 R5A5 R5D5 R510 R573 R182 △R614 △R616 △R617	401K5741 401K5745 40175125 40175127 40175129	R,CARBON 680K 5% 1/6W R,CARBON 1.0M 5% 1/6W R,CARBON 10H 5% 1/4W R,CARBON 12H 5% 1/4W R,CARBON 15H 5% 1/4W
△R432	40175133	R,CARBON 22H 5% 1/4W

*** RESISTORS ***

SYMBOL	PARTS NO	DESCRIPTION
△R526 △R525 △R592 △R521 △R631	40175161 40178166 40178177 40216274	R,CARBON 330H 5% 1/4W R,CARBON 510H 5% 1/2W R,CARBON 1.5K 5% 1/2W R,WIRE 1.2H 5% 5W
△R601 R5E0 R5E1 △R610 R426	40299107 40371135 40371143 40371329 40372105	R,WIRE 15H 10% 5W R,METAL 27H 5% 1W R,METAL 56H 5% 1W R,METAL 0.22H 5% 1W R,METAL 1.5H 5% 2W
△R654 △R666 △R651 R555 △R630 R567 △R606 △R624 R433 R5B6 R5B7	40372133 40372137 40372169 40372213 40373123 40373141 40373145 40373153 40373167 40373169	R,METAL 22H 5% 2W R,METAL 33H 5% 2W R,METAL 680H 5% 2W R,METAL 47K 5% 2W R,METAL 8.2H 5% 3W R,METAL 47H 5% 3W R,METAL 68H 5% 3W R,METAL 150H 5% 3W R,METAL 560H 5% 3W R,METAL 680H 5% 3W
△R667 △R657 △R668 △R603 △R607	40373173 40373197 40373213 40373217 40373219	R,METAL 1.0K 5% 3W R,METAL 10K 5% 3W R,METAL 47K 3W 5% R,METAL 68K 5% 3W R,METAL 82K 5% 3W
R972 R974 R973 R948 R954 R947 R950 R951 R953 R530 R922 R926 R931	40399039 40399040 40399045 40399046 404C1673	R,METAL 180H 5% 1W R,METAL 100H 5% 1W R,METAL 390H 5% 3W R,METAL 470H 5% 3W R,METAL 1.0K 1% 1/6W
R924 R928 R933 R919 R452 R474 R587 △R662 R180 R449 R506 R565	404C1675 404C1679 404C1683 404C1685 404C1687	R,METAL 1.2K 1% 1/6W R,METAL 1.8K 1% 1/6W R,METAL 2.7K 1% 1/6W R,METAL 3.3K 1% 1/6W R,METAL 3.9K 1% 1/6W
R501 R564 R920 R423 R534 R177 R453 R509 R512 R179 R406 R535 △R609	404C1691 404C1693 404C1695 404C1697 404C1699	R,METAL 5.6K 1% 1/6W R,METAL 6.8K 1% 1/6W R,METAL 8.2K 1% 1/6W R,METAL 10K 1% 1/6W R,METAL 12K 1% 1/6W
R176 R425 R181 R405 R421 R422 R446 R503 R511 R404 R508 R561 R178 R588	404C1701 404C1703 404C1705 404C1707 404C1709	R,METAL 15K 1% 1/6W R,METAL 18K 1% 1/6W R,METAL 22K 1% 1/6W R,METAL 27K 1% 1/6W R,METAL 33K 1% 1/6W
R562 R505 △R661	404C1711 404C1717 404C1719	R,METAL 39K 1% 1/6W R,METAL 68K 1% 1/6W R,METAL 82K 1% 1/6W

SYMBOL	PARTS NO	DESCRIPTION
*** RESISTORS ***		
R451	404C1733	R,METAL 330K 1% 1/6W
R185	404C1735	R,METAL 390K 1% 1/6W
R559	404C1737	R,METAL 470K 1% 1/6W
R454	404C1739	R,METAL 560K 1% 1/6W
R563	404C1745	R,METAL 1.0M 1% 1/6W
R427	404K3658	R,METAL 240H 1% 1/2W
⚠R2001 ⚠R2002 ⚠R5C2	40405109	R,METAL 2.2H 5% 1/4W
⚠R5D1 ⚠R553 R568		
⚠R627		
⚠R536	40405137	R,METAL 33H 5% 1/4W
⚠R520	40405149	R,METAL 100H 5% 1/4W
*** CAPACITORS ***		
C559 C570	420C9551	C,CERAMIC 500V 100PF
C577	420C9557	C,CERAMIC 500V 330PF
C547 C591	420C9560	C,CERAMIC 500V 560PF
C560	420C9563	C,CERAMIC 500V 0.001UF
C571	420C9567	C,CERAMIC 500V 2200PF
C173 C174 C404	420J9069	C,CERAMIC 50V 0.1UF
C414 C420 C599		
C927 C929 C931	4203J571	C,CERAMIC 500V·4700PF
C933	42040108	C,CERAMIC 2KV 0.01UF
⚠C603 ⚠C604 ⚠C610	42053013	C,CERAMIC 400V 1000PF
⚠C662	42099086	C,CERAMIC 2KV 1000PF
⚠C608 ⚠C651 ⚠C655	42099088	C,CERAMIC 2KV 220PF
⚠C621 ⚠C622	42099096	C,CERAMIC 2000V 470PF
C153 C154 C155	421A0425	C,CERAMIC 50V 0.01UF
C156 C157 C158		
C169 C171 C175		
C176 C177 C178		
C179 C180 C181		
C406 C409 C425		
C430 C543 C553		
C567 C568 C569		
C573 C574 C575		
C579 C580 C581		
C585 C908 C909		
C910 C911 C935		
C501	421C0208	C,CERAMIC 50V 390PF
C152 C554	421C0213	C,CERAMIC 50V 1000PF
C592	421C0217	C,CERAMIC 50V 0.0022UF
⚠C528	421C0701	C,CERAMIC 50V 100PF
C101 C160 C164	421J9001	C,CERAMIC 50V 0.1UF
C172 C557 C572		
C904 C907 C916		
C917 C918 C919		
C920 C922 C925		
C934		
C162 C163	423A1015	C,CERAMIC 50V 10PF
C151 C403	423A1045	C,CERAMIC 50V 100PF
C583	423A1047	C,CERAMIC 50V 120PF
C921 C923 C926	423A1051	C,CERAMIC 50V 180PF
C413	423A1053	C,CERAMIC 50V 220PF
C502 C513	427A7005	C,FILM 100V 0.0022UF

SYMBOL	PARTS NO	DESCRIPTION
*** CAPACITORS ***		
⚠C529 C584	427F4001	C,FILM 50V 1000PF
C530	427F4010	C,FILM 50V 5600PF
C524 C538	427F4013	C,FILM 50V 0.01UF
C417	427F4017	C,FILM 50V 0.022UF
C431	427F4021	C,FILM 50V 0.047UF
C539 C541	427F4025	C,FILM 50V 0.1UF
C523	427F4051	C,FILM 50V 1000PF
C402	427F4057	C,FILM 50V 3300PF
C514	427F4058	C,FILM 50V 3900PF
C508	427F4059	C,FILM 50V 4700PF
⚠C624	427F4063	C,FILM 50V 0.01UF
C510	427F4065	C,FILM 50V 0.015UF
C509 C516	427F4071	C,FILM 50V 0.047UF
C562	42754163	C,FILM 100V 0.01UF
C555	42754207	C,FILM 200V 0.01UF
C544	42754267	C,FILM 200V 0.022UF
C548	42754470	C,FILM 400V 0.039UF
C506 C507	4276H325	CQ93P1H102JW
⚠C660	4282C010	C,METAL 50V 0.056UF
⚠C616	4282C011	C,FILM 50V 0.068UF
⚠C605 ⚠C614 ⚠C618	4282C013	C,FILM 50V 0.1UF
C401 C411	4282C025	C,METAL FILM 50V 1UF
⚠C620	42824325	C,FILM 250V 0.1UF
⚠C602	42824329	C,FILM 250V 0.22UF
⚠C661	42840009	C,METAL FILM 100V 0.047UF
⚠C658 ⚠C659	42840084	C,METAL 250V 0.018UF
⚠C609	42840169	C,METAL 400V 470000PF
⚠C617	42842004	C,METAL 50V 390PF
⚠C549	42842506	C,METAL 1600V 7800PF
⚠C552	42842507	C,METAL 400V 0.025UF
⚠C533	42843501	C,FILM 200V 0.82UF
⚠C534	42843508	C,METAL 200V 0.47UF
⚠C532	42843509	C,METAL 400V 0.12UF
⚠C535	42899014	C,METAL FILM 400V 0.39UF
⚠C601	42899097	C,METAL 250V 0.47UF
C545	430B3051	C,ELEC 16V 220UF
⚠C2002	430B3091	C ELEC 35V 220UF
C928 C930 C932	430B3182	C,ELEC 160V 1UF
C565	430B3187	C,ELEC 160V 22UF
C912	430B5051	C,ELEC 16V 220UF
C410	430B5053	C,ELEC 16V 470UF
C419	430B5107	C,ELEC 50V 22UF
⚠C2003 ⚠C2004	430B6015	C,ELEC 10V 47UF
C505	430B6016	C,ELEC 10V 100UF
C512	430B6017	C,ELEC 10V 220UF
C595	430B6031	C,ELEC 16V 330UF
C161 ⚠C526	430B6039	C,ELEC 25V 22UF
C517	430B6041	C,ELEC 25V 47UF
C561	430B6053	C,ELEC 35V 47UF
C426 C520 ⚠C527	430B6061	C,ELEC 50V 1UF
C598		
C542 C546	430B6062	C,ELEC 50V 2.2UF

SYMBOL	PARTS NO	DESCRIPTION
*** CAPACITORS ***		
C518	430B6065	C,ELEC 50V 10UF
C540	430B6066	C,ELEC 50V 22UF
C556 C558	430B6068	C,ELEC 50V 47UF
C159 C519	430B9017	C,ELEC 10V 220UF
C421 C424	430B9026	C,ELEC 16V 22UF
C422 C563 C901	430B9028	C,ELEC 16V 47UF
C902 C903 C924		
C531 C906	430B9029	C,ELEC 16V 100UF
C2001 C564	430B9053	C,ELEC 35V 47UF
C412 C415	430B9054	C,ELEC 35V 100UF
C522	430B9055	C,ELEC 35V 220UF
C593	430B9061	C,ELEC 50V 1UF
C913 C914 C915	430B9062	C,ELEC 50V 2.2UF
C536	430B9556	C,ELEC 250V 10UF
C183	430C0043	C,ELEC 16V 10UF
C166 C167	430C0045	C,ELEC 16V 22UF
C165	430C0077	C,ELEC 50V 1UF
C525	430C2344	C,ELEC 16V 470UF
C407 C408	430C6024	C,ELEC 16V 220UF
C537	4302C190	C,ELEC 160V 100UF
⚠C664	4302J053	C,ELEC 35V 47UF
⚠C663	4302J058	C,ELEC 35V 1000UF
⚠C615	4302J064	C,ELEC 50V 4.7UF
⚠C611 ⚠C619	4302J065	C,ELEC 50V 10UF
⚠C612	4302J066	C,ELEC 50V 22UF
⚠C657	4302J102	C,ELEC 100V 100UF
⚠C656	4302J103	C,ELEC 100V 220UF
C594	4302J516	C,ELEC 160V 10UF
⚠C654	4302J559	C,ELEC 250V 47UF
⚠C653	4302J560	C,ELEC 250V 100UF
C418	43099146	C,ELEC 50V 1000UF
⚠C606	43109577	C,ELEC 400V 390UF
C905	4339J031	C,ELEC 35V 4.7UF
C416	435A8153	C,TANTLM 16V 4.7UF
C515	435A8307	C,TANTALM 35V 1UF

SWITCH REGULATOR UNIT (31104018) REPLACEMENT PARTS LIST

This switch regulator unit is supplied from within the United King (made by Delta Electronic Industrial Co., Ltd.) The ** mark next to parts numbers indicates parts whose orders are handled in the U.K.

Note: 1. The components identified by mark are critical for safety.
Replace only with parts Number specified.

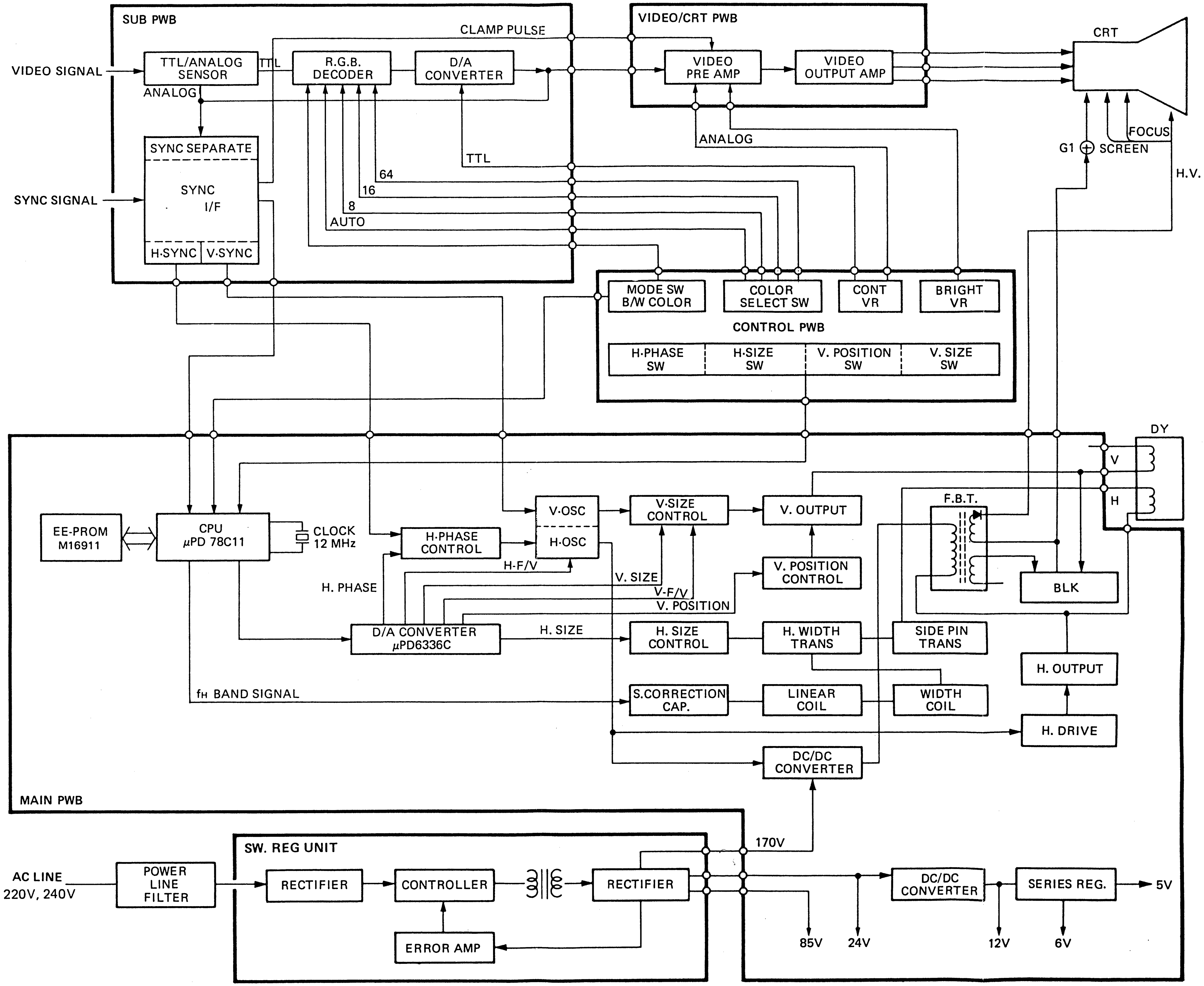
SYMBOL	PARTS No.	DESCRIPTION
⚠R601	**0233623100	RESISTOR WIRE WOUND 62KΩ 7W ±5%
⚠R602	**0223473300	RESISTOR WIRE WOUND 47KΩ 5W ±5%
⚠R603	**0143204200	RESISTOR METAL FILM or CARBON 200KΩ 2W ±5%
⚠R604	**0133240000	RESISTOR METAL FILM or CARBON 24Ω 1W ±5%
⚠R605	**0133100000	RESISTOR METAL FILM or CARBON 10Ω 1W ±5%
⚠R619	**0143479200	RESISTOR METAL FILM or CARBON 0.47Ω 2W ±5%
⚠R620	**0223122300	RESISTOR WIRE WOUND 1.2KΩ 5W ±5%
⚠R624	**0133470000	RESISTOR METAL FILM or CARBON 47Ω 1W ±5%
⚠R625	**0239000100	RESISTOR WIRE WOUND 15Ω 7W ±5%
⚠R627	**0133224000	RESISTOR METAL FILM or CARBON 220KΩ 1W ±5%
⚠R652	**0133152000	RESISTOR METAL FILM or CARBON 1.5KΩ 1W ±5%
⚠R681	**0143473200	RESISTOR METAL FILM or CARBON 47KΩ 2W ±5%
⚠R691	**0133270000	RESISTOR METAL FILM or CARBON 27Ω 1W ±5%
⚠R692	**0143683200	RESISTOR METAL FILM or CARBON 68KΩ 2W ±5%
⚠VR651	**0607201000	RESISTOR VARIABLE HORIZ 1KΩ 0.1W ±30%
⚠C601	**1410033007	CAPACITOR ELECTROLYTIC 330μF 400V ±20%
⚠C602	**1142046400	CAPACITOR CERAMIC DISC Z7P 2200PF 1KV
⚠C604⚠C606	4302J064	CAPACITOR C,ELEC 50V 4.7μF
⚠C605	**1950204000	CAPACITOR METALIZED MYLAR FILM 6800PF 50V ±10%
⚠C608⚠C609	**1141538300	CAPACITOR CERAMIC DISC Z5P 220PF 1KV ±20%
⚠C610	**1604312009	CAPACITOR METALIZED MYLAR FILM 0.1μF 250V ±20%
⚠C694	**1141542000	CAPACITOR CERAMIC DISC Z5P 470PF 1KV ±20%
⚠C616	**1100047023	CAPACITOR CERAMIC DISC Y5U 3300PF 400VAC ±20%
⚠C614	**1620313000	CAPACITOR METALIZED MYLAR FILM 0.22μF 100V ±20%
⚠C653	**1200859201	CAPACITOR MONOLITHIC CERAMIC 0.22μF 100V ±20%
⚠C654	**1622313000	CAPACITOR METALIZED MYLAR FILM 0.22μF 100V ±20%
⚠C681	**1430821243	CAPACITOR ELECTROLYTIC 220μF 100V ±20%
⚠C682	4302J102	CAPACITOR C,ELEC 100V 100μF
⚠C691	**1141542000	CAPACITOR CERAMIC DISC Z5P 470PF 1KV ±20%
⚠C692	**1430630014	CAPACITOR ELECTROLYTIC 100μF 250V ±20%
⚠C693	4302J559	CAPACITOR C,ELEC 250V 47μF
⚠CX601	**1604317009	CAPACITOR METALIZED MYLAR FILM 1μF 250V ±20%
⚠CX602	**1604314009	CAPACITOR METALIZED MYLAR FILM 0.33μF 250V ±20%
⚠CY601⚠CY602	42053013	CAPACITOR C,CERAMIC 400V 1000PF
⚠D601⚠D602⚠D603 ⚠D604	**2050031601	DIODE SILICON 3A 600V
⚠D606⚠D611	36107287	DIODE RECTIFIER,SI.RGP10J
⚠D608⚠D609	**2010101021	DIODE FAST RECOVERY 1A 100V
⚠D651	**2010031221	DIODE FAST RECOVERY 5A 200V
⚠D681⚠D691	**2010321601	DIODE FAST RECOVERY 3A 600V
⚠F601	**0804140601	FUSE TIME LAG PIGTAIL 3A 250V
⚠F651	**0804140301	FUSE TIME LAG PIGTAIL 2A 250V
⚠SCR601	**2200010001	THYRISTOR SCR 200V 0.8A 0.1W
⚠ZD651	36003109	DIODE RD30EB(2)
⚠ZD603	**2030120300	ZENER DIODE V_Z=17.5V TO 18.3V 0.5W
⚠FL601	**2805011500	LINE FILER LF-E25-10

SYMBOL	PARTS No.	DESCRIPTION
⚠IC601	**2510004021	IC CURRENT MODE PWM CONTROL 30V 1A
⚠IC602⚠IC603	**2310002001	IC PHOTO COUPLER 30V 250MW 6PIN
⚠IC651	**2500004021	IC ADJ. VOL. REGULATOR Vz=36V P=775mV
⚠T601	**2800105800	TRANSFORMER SMT-42H-223A
⚠L601	**2921020000	BEAD CORE 3.5*1.5*6
⚠L651	**2816200100	CHOKE CB-6.2-01
⚠L681⚠L691	**2816300400	CHOKE CD-6.0-04
⚠PT601	**0900030008	POSISTOR 20A R=30Ω
⚠Q601	**2430015001	FET POWER 4.7A 900V
⚠Q602	**2110003001	TRANSITOR Vceo=-20 Ic=-1A
⚠Q603	**2210020001	TRIAC Vceo=500V Ic=8A
⚠TH601	**0829000200	THERMAL FUSE 128 DEGREE C 15A 240V
	**3240180501	INSULATOR (Q601)
	**3240180000	INSULATOR (Q603)

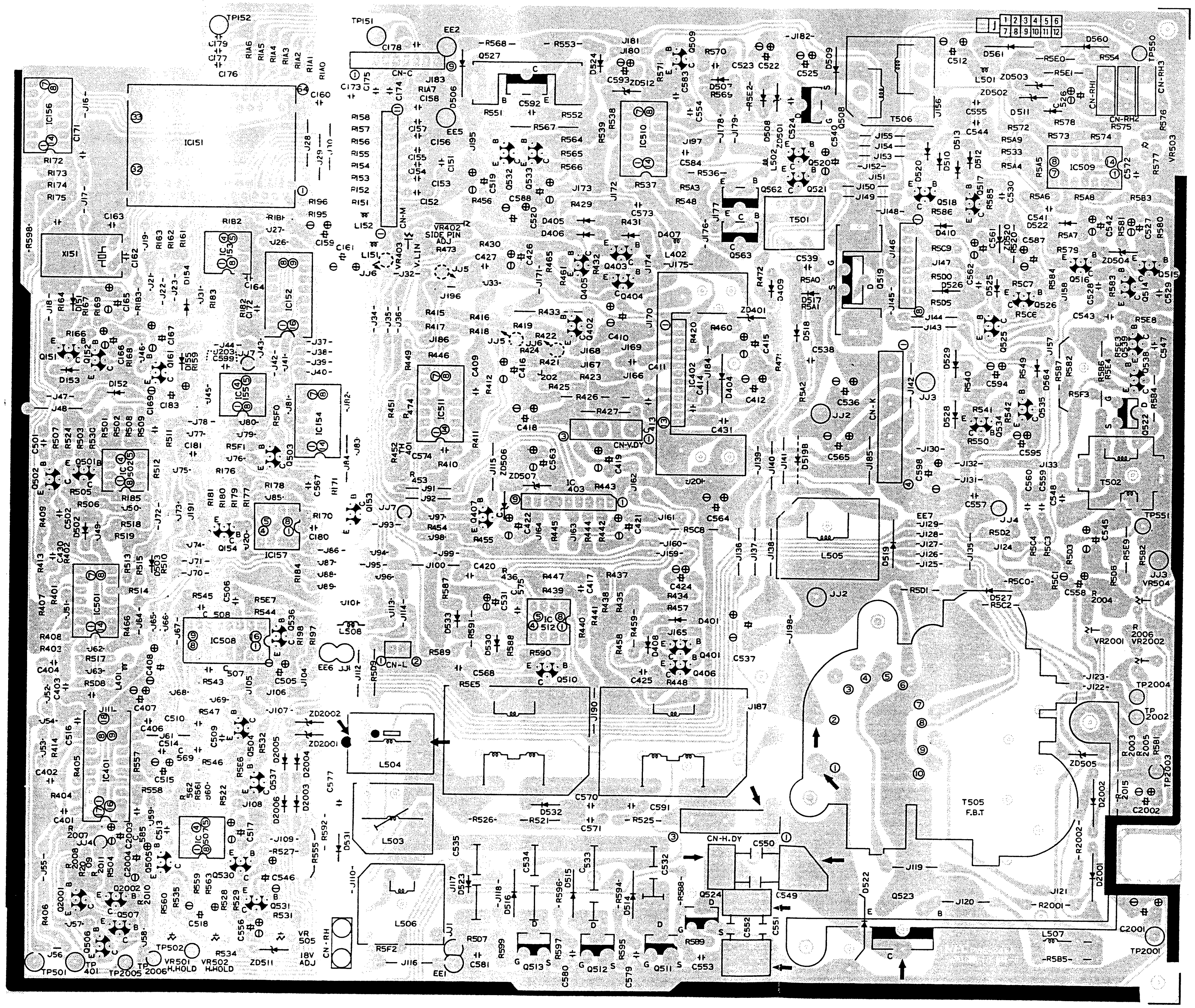
Reference of Delta Electronic Industrial Co., Ltd.

Delta Electronic AG
Hardstrasse 72
CH-5430 Wettingen, Switzerland
Tel: (56) 275800
Fax: (56) 261486

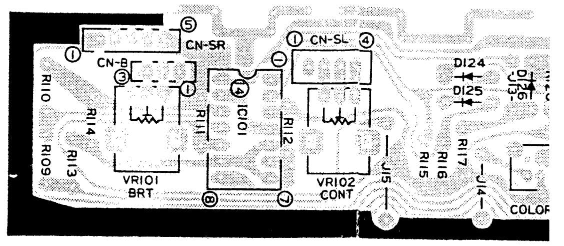
BLOCKDIAGRAM


SUB PWB
VIDEO SIGNAL
SYNC SIGNAL
TTL/ANALOG SENSOR
TTL
ANALOG
R.G.B. DECODER
D/A CONVERTER
CLAMP PULSE
SYNC SEPARATE
SYNC I/F
H·SYNC
V·SYNC
64
16
8
AUTO
TTL
VIDEO/CRT PWB
VIDEO PRE AMP
VIDEO OUTPUT AMP
ANALOG
CRT
G1
SCREEN
FOCUS
H.V.
MODE SW B/W COLOR
COLOR SELECT SW
CONT VR
BRIGHT VR
CONTROL PWB
H·PHASE SW
H·SIZE SW
V. POSITION SW
V. SIZE SW
DY
V
H
MAIN PWB
EE-PROM M16911
CPU µPD 78C11
CLOCK 12 MHz
H·PHASE CONTROL
V·OSC
H·OSC
H-F/V
H. PHASE
V·SIZE CONTROL
V. OUTPUT
V. POSITION CONTROL
V. SIZE
V-F/V
V. POSITION
D/A CONVERTER µPD6336C
H. SIZE
H. SIZE CONTROL
H. WIDTH TRANS
SIDE PIN TRANS
F.B.T.
BLK
H. OUTPUT
fH BAND SIGNAL
S.CORRECTION CAP.
LINEAR COIL
WIDTH COIL
H. DRIVE
DC/DC CONVERTER
SW. REG UNIT
AC LINE 220V, 240V
POWER LINE FILTER
RECTIFIER
CONTROLLER
RECTIFIER
ERROR AMP
170V
DC/DC CONVERTER
SERIES REG.
5V
85V
24V
12V
6V

PRINTED WIRING BOARDS


TP152
TP151
EE2
CN-C
CN-M
IC151
IC156
IC152
IC153
IC154
IC155
IC157
IC401
IC402
IC403
IC501
IC507
IC508
IC509
IC510
IC511
IC512
X151
VR402 SIDE PIN ADJ
VR403 V-LIN
CN-VDY
CN-K
CN-L
CN-RH
CN-RH1
CN-RH2
CN-RH3
CN-H.DY
T501
T502
T505 F.B.T
T506
L501
L503
L504
L505
L506
L507
L508
Q523
Q524
Q511
Q512
Q513
TP501
TP401
TP2005
TP2006
TP502
VR501 H.HOLD
VR502 H.HOLD
VR 505 18V ADJ
EE1
EE5
EE6
EE7
TP550
TP551
TP2001
TP2002
TP2004
VR504
VR2001
VR2002
VR503
JJ2
JJ3
JJ4

MAIN PWB ASSY (PWE-248A)
—Solder side—
Models JC-1404HME-1/EE-1/ED-1

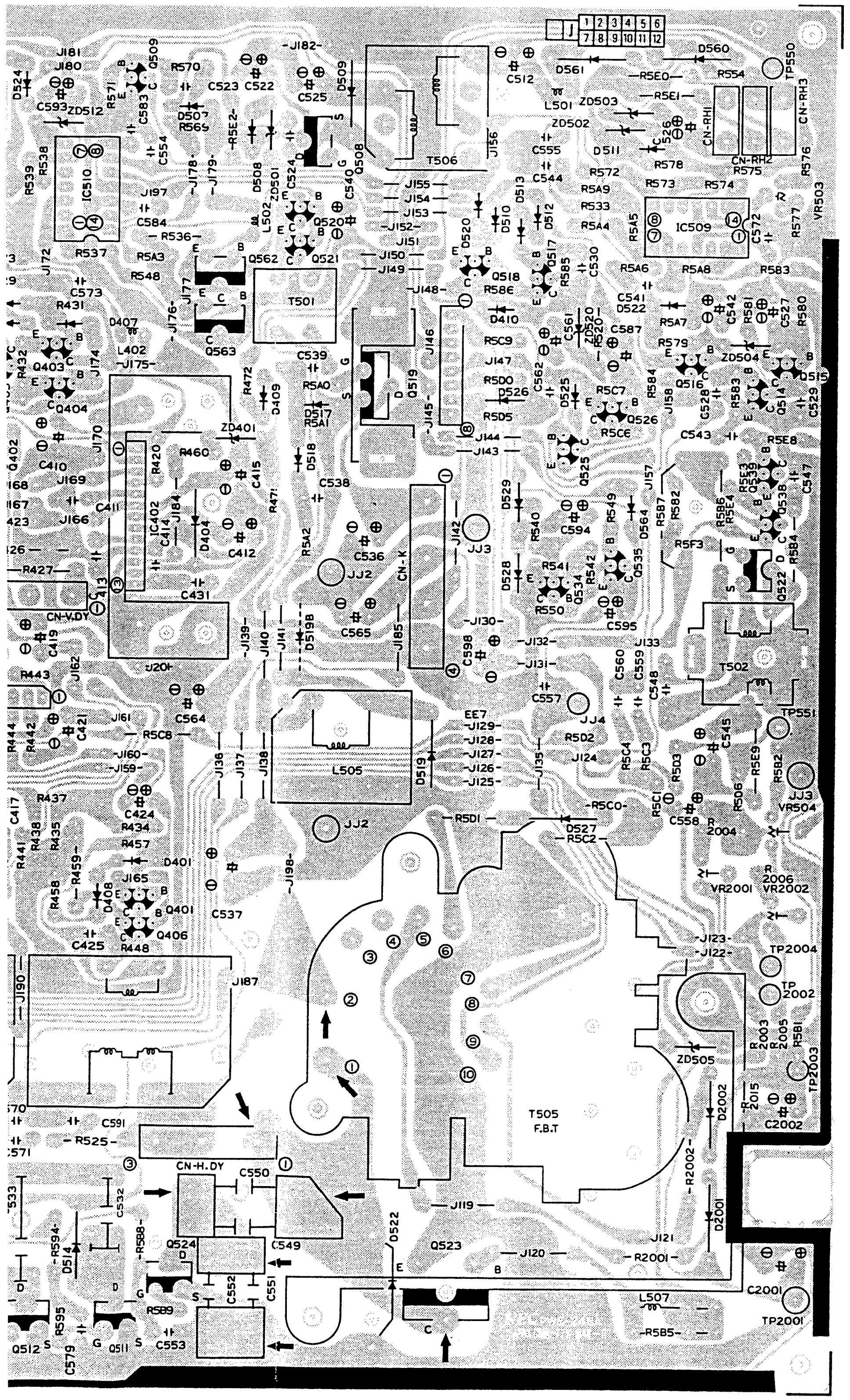

CN-B
CN-SR
CN-SL
IC101
VR101 BRT
VR102 CONT
R110
R109
R114
R113
R111
R112
D124
D125
R116
R115
R117
J15
J14
COLOR

CONTRO

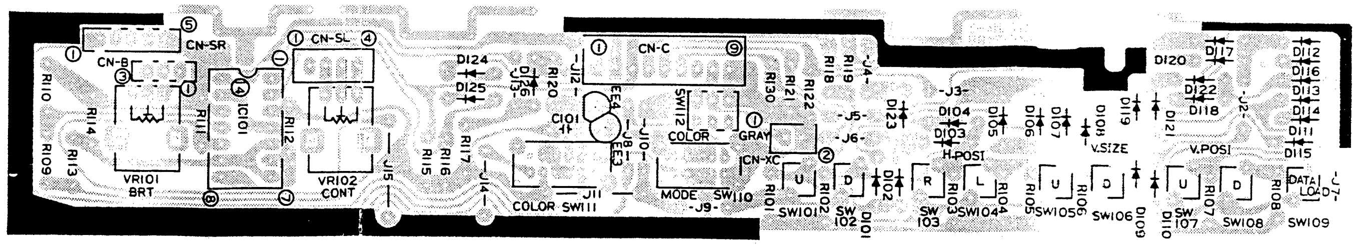
Models J

LED P

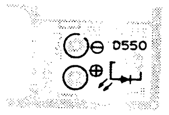
Models J



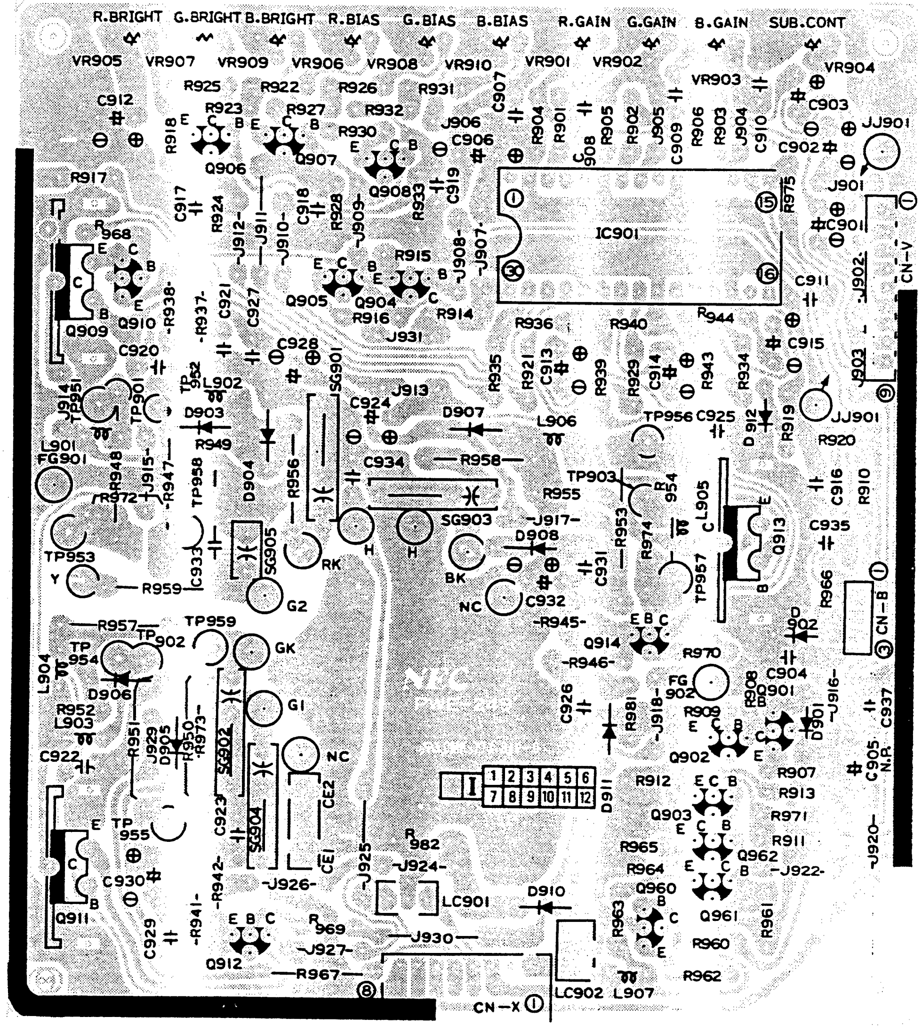
SY (PWE-248A)
r side—
HME-1/EE-1/ED-1



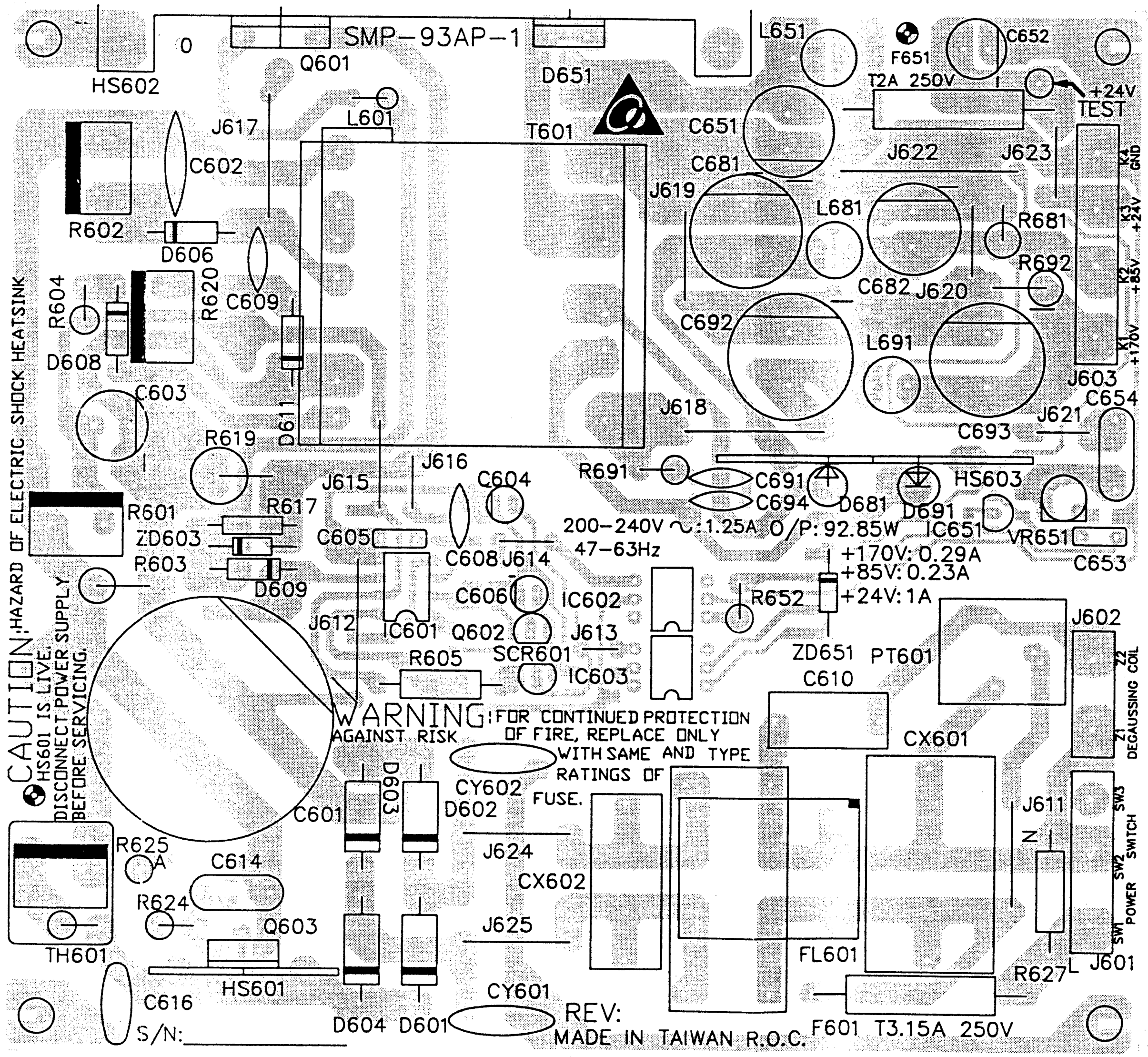
CONTROL PWB ASSY (PWE-248B)
—Solder side—
Models JC-1404HME-1/EE-1/ED-1



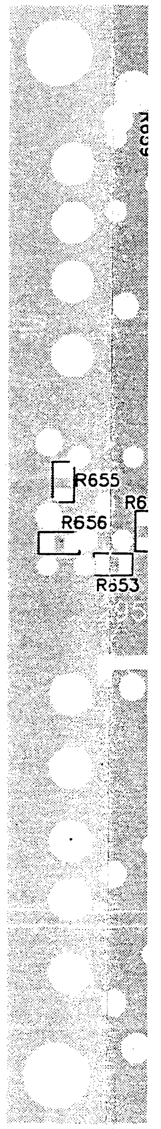
LED PWB ASSY (PWE-248C)
—Solder side—
Models JC-1404HME-1/EE-1/ED-1

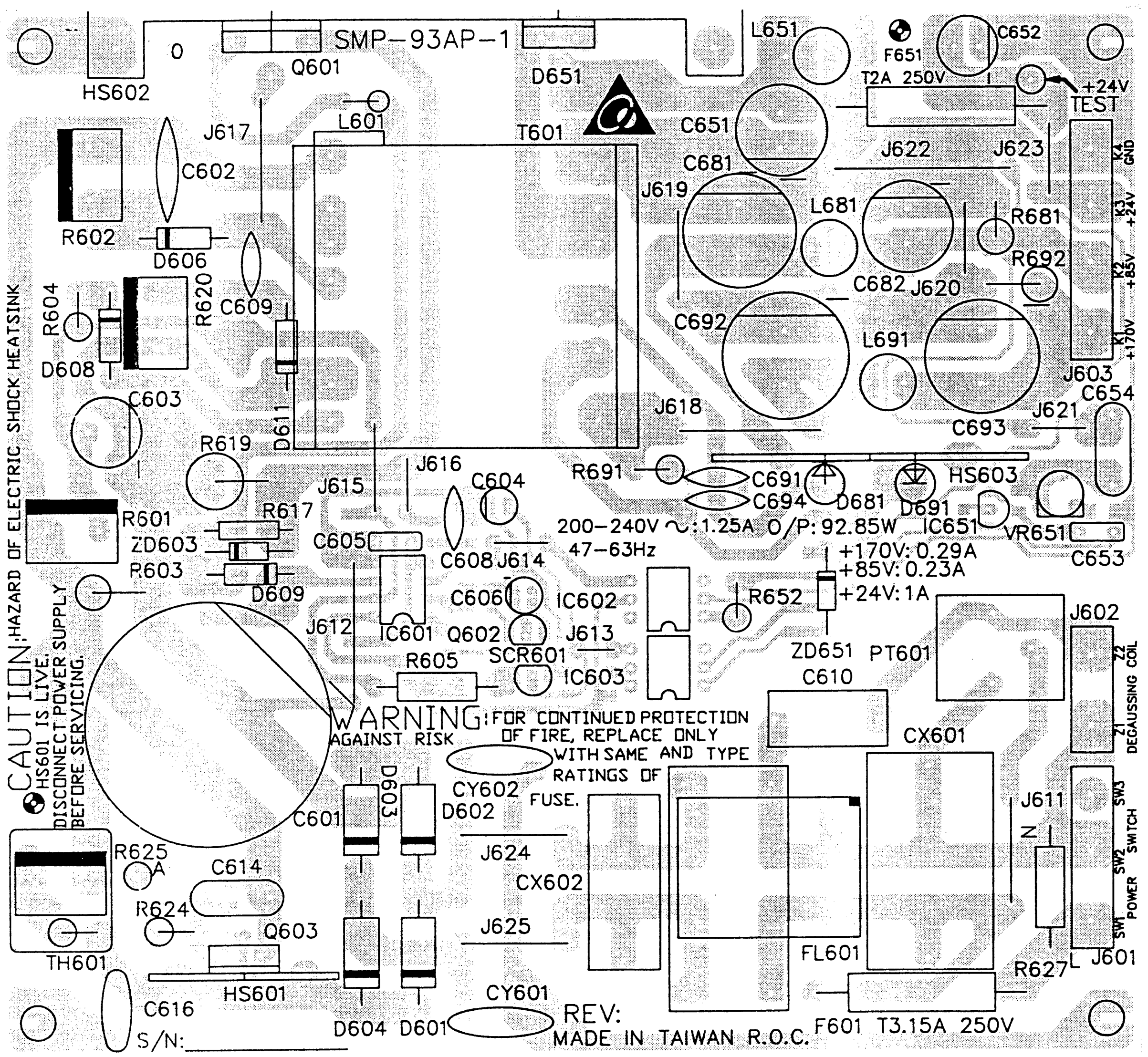

R.BRIGHT
G.BRIGHT
B.BRIGHT
R.BIAS
G.BIAS
B.BIAS
R.GAIN
G.GAIN
B.GAIN
SUB.CONT
VR905
VR907
VR909
VR906
VR908
VR910
VR901
VR902
VR903
VR904
IC901
Q905
Q904
Q906
Q907
Q908
Q909
Q910
Q911
Q912
Q913
Q914
Q902
Q903
Q960
Q961
Q962
CN-V
CN-B
CN-X
LC901
LC902
L907
SG901
SG902
SG903
SG904
SG905
RK
BK
NC
G2
GK
G1
H
FG901
FG902
TP953
TP954
TP955
TP956
TP957
TP958
TP959
NEC
PWE-249

VIDEO/CRT PWB ASSY (PWE-249)
—Solder side—
Models JC-1404HME-1/EE-1/ED-1


SMP-93AP-1
HS602
Q601
D651
L651
F651
T2A 250V
C652
+24V
TEST
L601
T601
C651
C681
J622
J623
J619
L681
R681
R692
C682
J620
C692
L691
C693
J603
J621
C654
J618
R691
C691
C694
D681
D691
HS603
IC651
VR651
C653
J617
C602
R602
D606
C609
R604
R620
D608
D611
C603
R619
R601
R617
J615
J616
C604
ZD603
C605
R603
D609
C608
J614
C606
IC602
J612
IC601
Q602
J613
SCR601
IC603
R605
R652
ZD651
PT601
C610
J602
DEGAUSSING COIL
CX601
CAUTION: HAZARD OF ELECTRIC SHOCK HEATSINK
HS601 IS LIVE.
DISCONNECT POWER SUPPLY
BEFORE SERVICING.
WARNING: FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE, REPLACE ONLY
WITH SAME AND TYPE
RATINGS OF
FUSE.
200-240V ~:1.25A O/P: 92.85W
47-63Hz
+170V: 0.29A
+85V: 0.23A
+24V: 1A
CY602
D602
D603
C601
R625
C614
R624
Q603
J624
CX602
J625
J611
POWER SWITCH
TH601
HS601
C616
S/N:
D604
D601
CY601
REV:
MADE IN TAIWAN R.O.C.
FL601
R627
J601
F601
T3.15A 250V

SW REG UNIT (SMP-93AP-1)
—Component side—
Models JC-1404HME-1/EE-1/ED-1

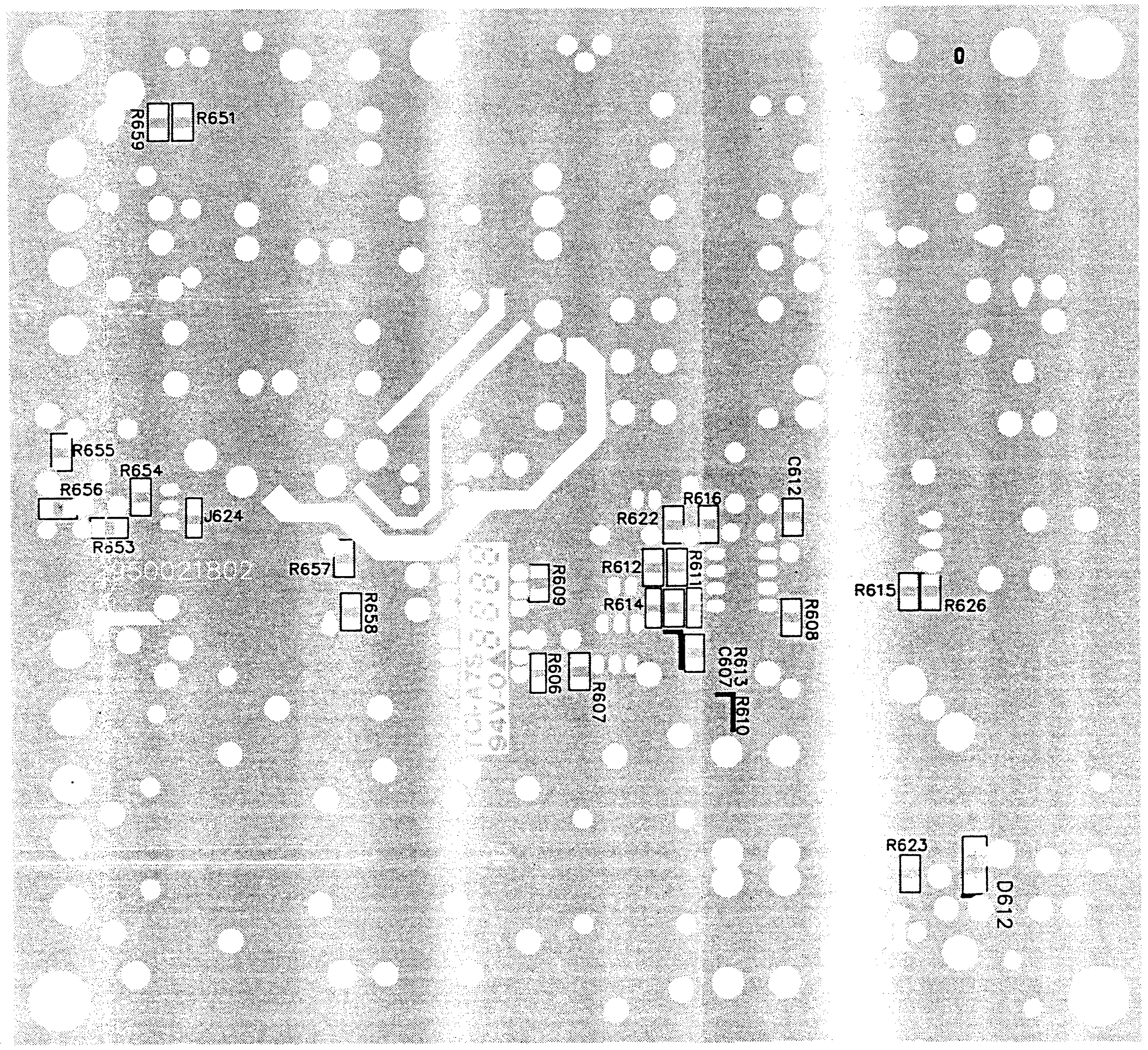

R655
R656
R653


SMP-93AP-1
HS602
Q601
D651
L651
F651
T2A 250V
C652
+24V
TEST
L601
T601
C651
C681
J622
J623
J617
C602
R602
D606
J619
L681
R681
R692
C682
J620
R604
R620
C609
D608
C692
L691
J603
C654
C603
D611
J618
C693
J621
R619
J615
J616
C604
R691
C691
C694
D681
D691
HS603
IC651
VR651
C653
R601
R617
ZD603
C605
C608
J614
R603
D609
200–240V ∿:1.25A O/P:92.85W
47–63Hz
+170V: 0.29A
+85V: 0.23A
+24V: 1A
C606
IC602
R652
J602
J612
IC601
Q602
J613
ZD651
PT601
R605
SCR601
IC603
C610
CAUTION: HAZARD OF ELECTRIC SHOCK HEATSINK HS601 IS LIVE. DISCONNECT POWER SUPPLY BEFORE SERVICING.
WARNING: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME AND TYPE RATINGS OF FUSE.
CX601
D603
CY602
D602
C601
J611
R625
C614
J624
CX602
R624
Q603
J625
FL601
TH601
HS601
CY601
R627
J601
C616
S/N:
D604
D601
REV:
MADE IN TAIWAN R.O.C.
F601 T3.15A 250V
DEGAUSSING COIL
POWER SWITCH

SW REG UNIT (SMP-93AP-1)

–Component side–

Models JC-1404HME-1/EE-1/ED-1

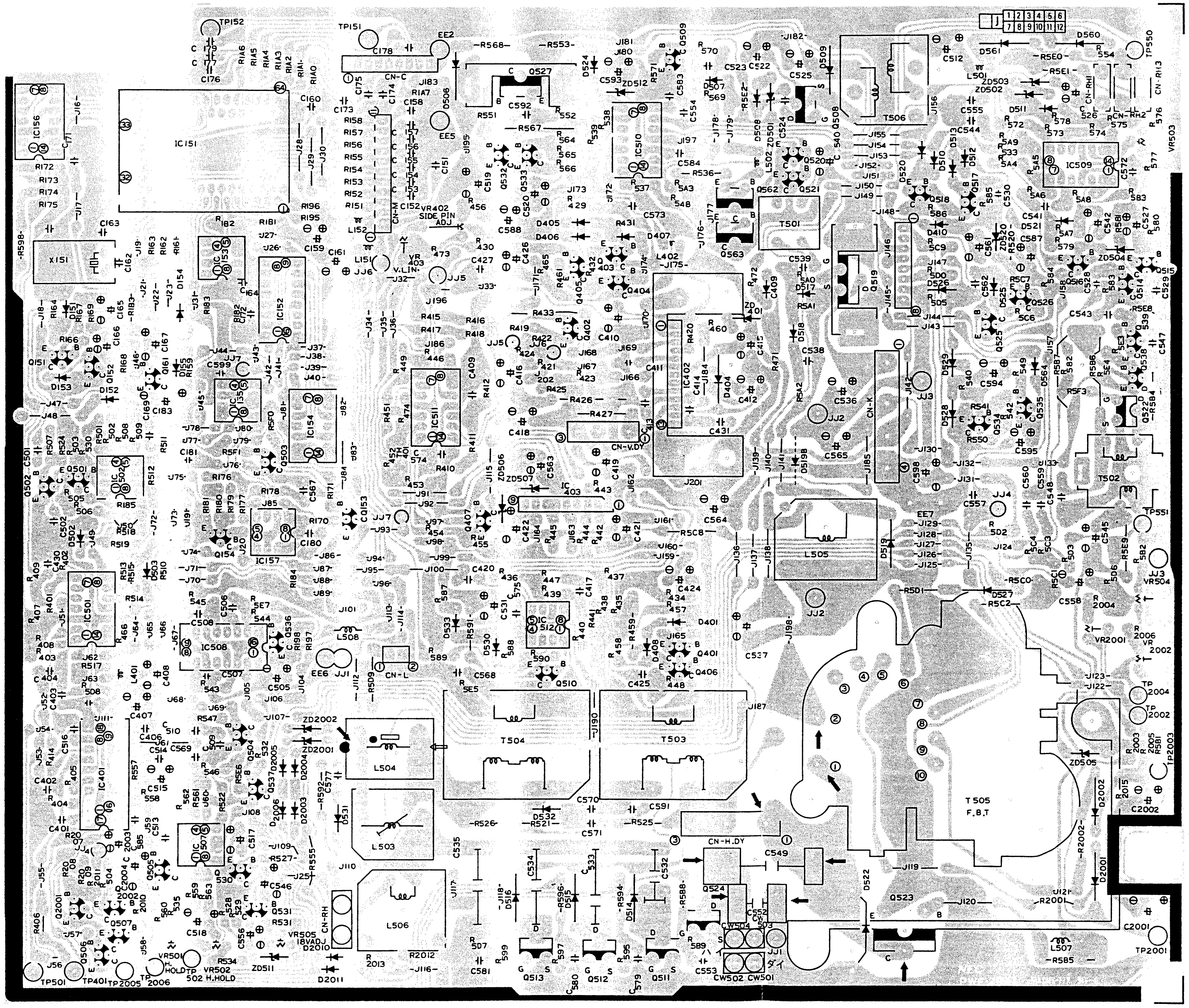

R659
R651
R655
R654
R656
R653
J624
R657
R658
R609
R622
R616
C612
R612
R611
R614
R608
R606
R607
R613
C607
R610
R615
R626
R623
D612

SW REG UNIT (SMP-93AP-1)

–Solder side–

Models JC-1404HME-1/EE-1/ED-1

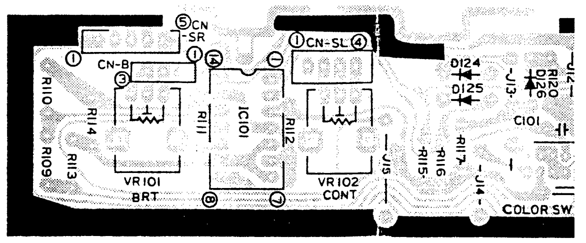
PRINTED WIRING BOARDS


TP152
TP151
EE2
TP550
IC151
IC156
X151
IC152
IC153
IC154
IC155
IC157
IC501
IC508
IC401
IC507
IC510
IC511
IC509
IC402
IC403
IC512
Q527
Q520
Q521
Q562
Q563
T501
T506
T502
T503
T504
T505
F.B.T
L505
L504
L503
L506
L507
L508
CN-C
CN-M
CN-L
CN-K
CN-V.DY
CN-H.DY
CN-RH
CN-RH1
CN-RH2
VR402
SIDE PIN
ADJ
VR403
V.LIN.
VR501
H.HOLD
VR502
VR505
18V ADJ
VR504
VR2001
TP501
TP401
TP2005
TP2006
TP2004
TP2002
TP2003
TP2001
TP551
JJ1
JJ2
JJ3
JJ4
JJ5
JJ6
JJ7
EE5
EE6
EE7
Q523
Q524
Q511
Q512
Q513
CW501
CW502
CW503
CW504

MAIN PWB ASSY (PWE-294A)

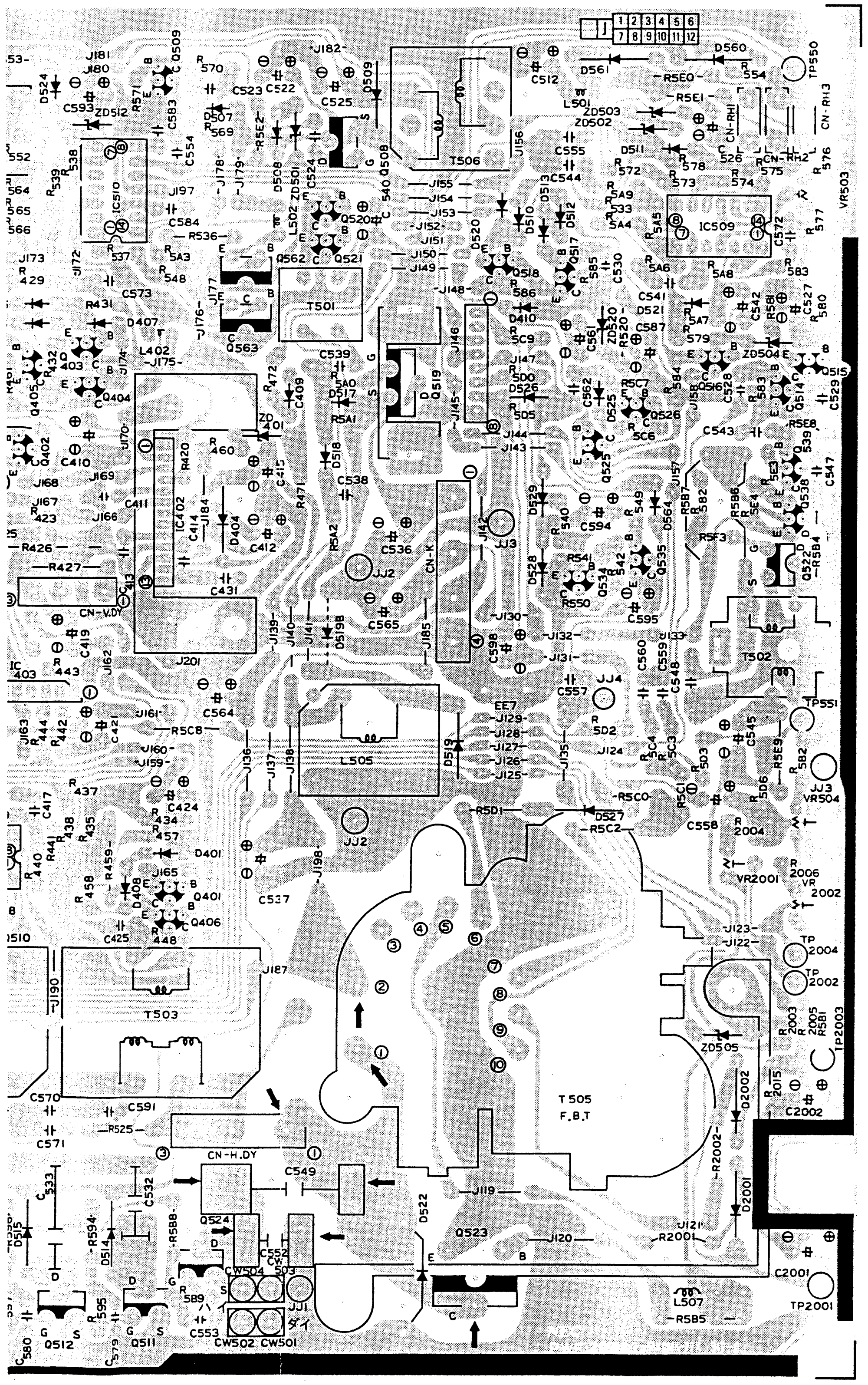
—Solder side—

Model JC-1404HMN

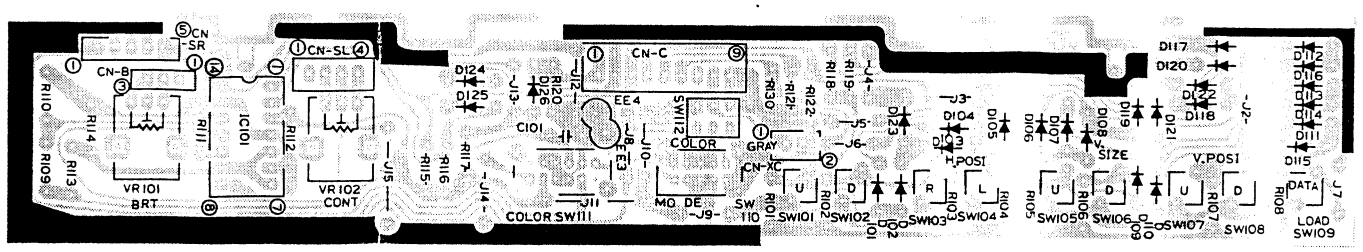

CN-SR
CN-B
CN-SL
IC101
VR101
BRT
VR102
CONT
COLOR SW
R110
R109
R113
R114
R111
R112
C101
D124
D125

CONTRO

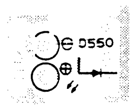
M


T506
T501
T502
T503
L505
T505
F.B.T
IC509
IC510
IC402
CN-K
CN-V.DY
CN-H.DY
JJ1
JJ2
JJ3
JJ4
TP550
TP551
TP2001
TP2002
TP2003
TP2004
VR503
VR504
VR2001
VR2002

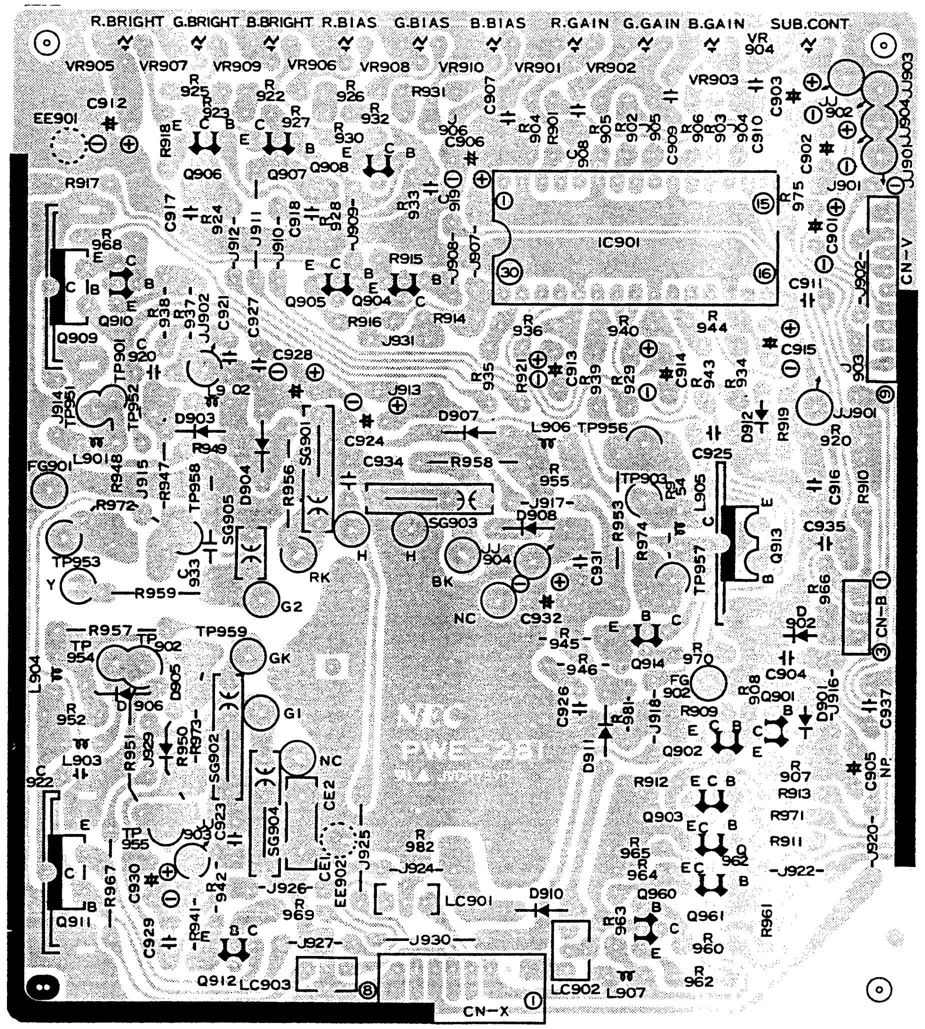
ASSY (PWE-294A)
older side–
JC-1404HMN


CN-SR
CN-B
CN-SL
CN-C
IC101
VR101
BRT
VR102
CONT
COLOR
COLOR SW111
SW112
MODE
SW110
GRAY
CN-XC
H.POSI
SIZE
V.POSI
DATA
LOAD
SW101
SW102
SW103
SW104
SW105
SW106
SW107
SW108
SW109

CONTROL PWB ASSY (PWE-294B)
–Solder side–
Model JC-1404HMN



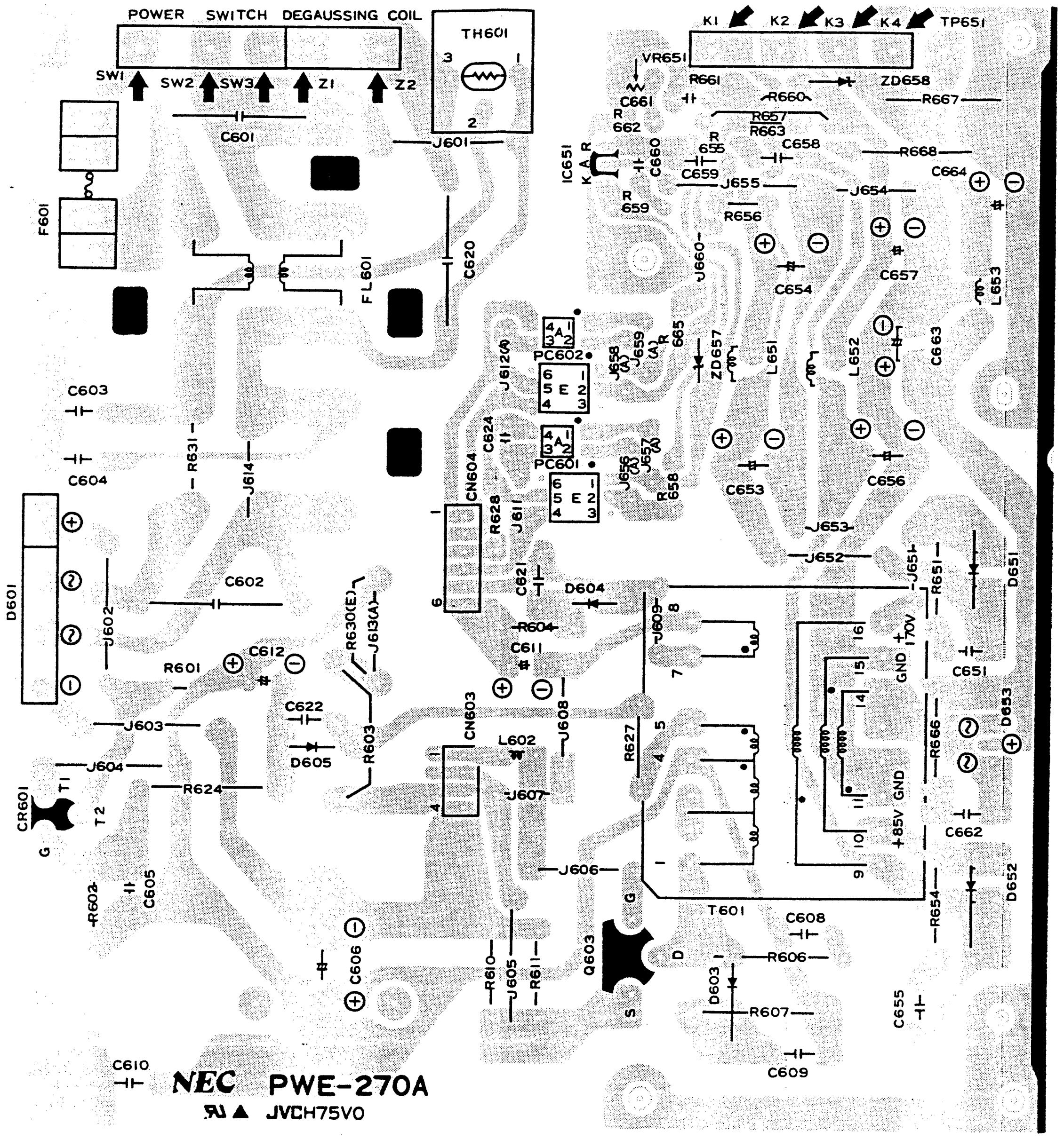
LED PWB ASSY (PWE-294C)
–Solder side–
Model JC-1404HMN


R.BRIGHT
G.BRIGHT
B.BRIGHT
R.BIAS
G.BIAS
B.BIAS
R.GAIN
G.GAIN
B.GAIN
SUB.CONT
VR905
VR907
VR909
VR906
VR908
VR910
VR901
VR902
VR903
VR904
IC901
EE901
Q906
Q907
Q908
Q909
Q910
Q911
Q912
Q913
Q914
Q902
Q903
Q960
Q961
CN-V
CN-B
CN-X
LC901
LC902
LC903
SG901
SG902
SG903
SG904
SG905
NEC
PWE-281

VIDEO/CRT PWB ASSY (PWE-281)

—Solder side—

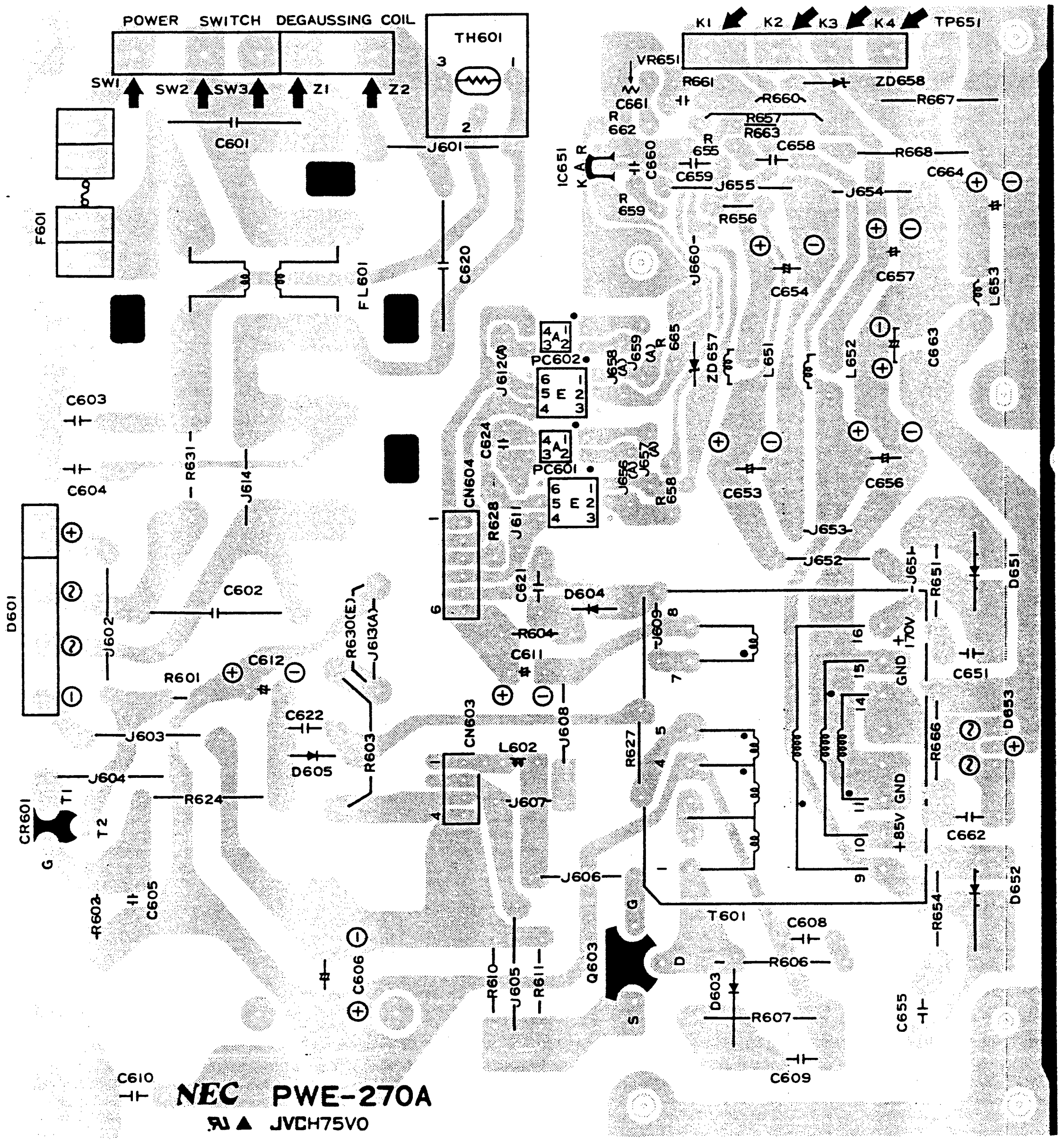
Model JC-1404HMN


POWER SWITCH
DEGAUSSING COIL
SW1
SW2
SW3
Z1
Z2
TH601
K1
K2
K3
K4
TP651
VR651
ZD658
F601
FL601
IC651
PC601
PC602
CN603
CN604
D601
CR601
T601
Q603
L602
L651
L652
L653
170V
GND
+85V
NEC
PWE-270A
JVCH75V0

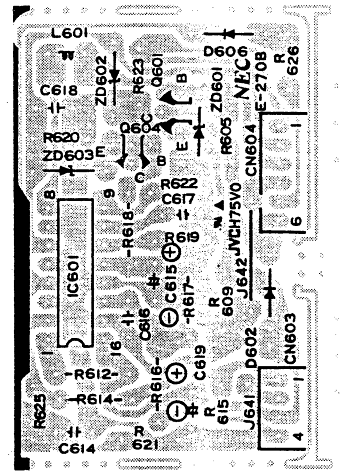
SW REG PWB ASSY (PWE-270A)

— Solder side —

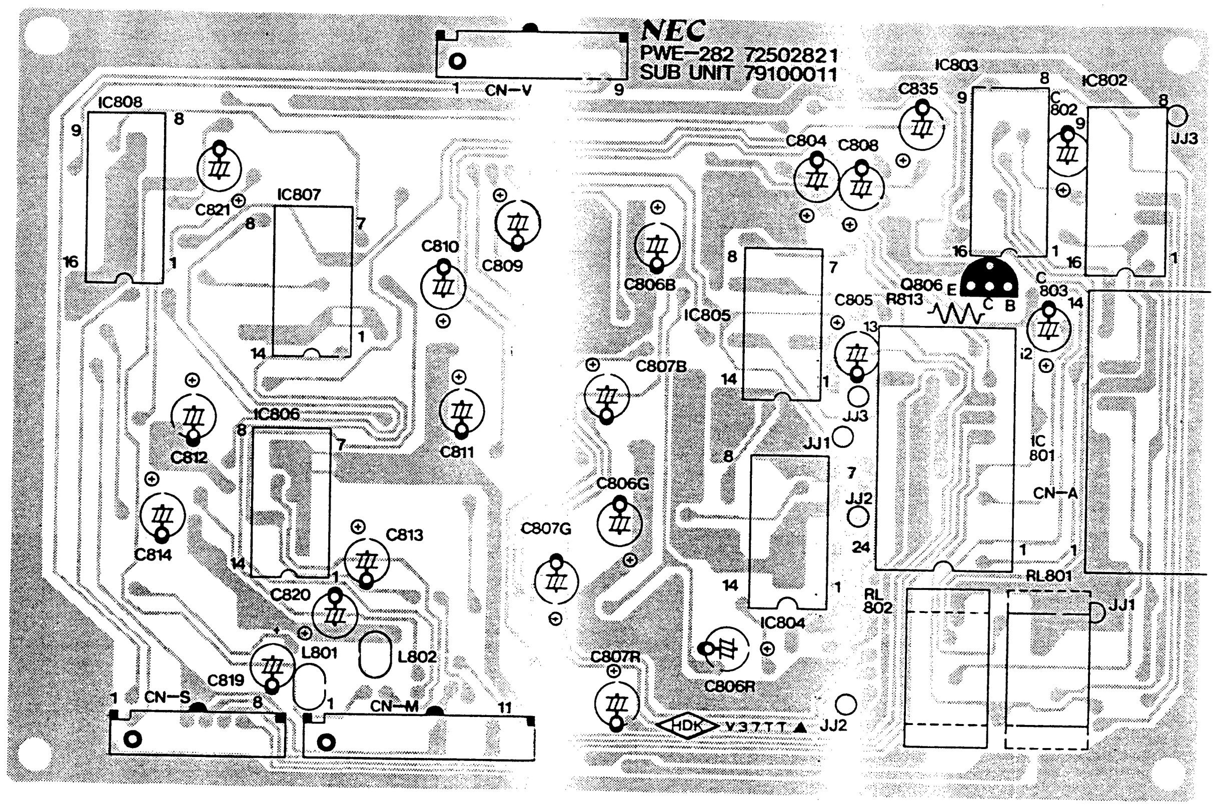
Model JC-1404HMN


POWER SWITCH DEGAUSSING COIL
SW1
SW2
SW3
Z1
Z2
TH601
C601
J601
F601
FL601
C620
C603
C604
R631
J614
D601
C602
J602
R601
C612
R630(E)
J613(A)
C622
D605
R603
J603
J604
R624
CR601
T1
T2
G
R602
C605
C606
R610
J605
R611
Q603
D603
R607
C609
R606
C608
T601
J606
J607
CN603
L602
J608
R627
C611
R604
D604
C621
CN604
R628
J611
J612
C624
PC601
PC602
J656
J657
R658
J658
J659
R665
ZD657
L651
L652
C653
C654
C656
C657
J653
J652
J651
R651
D651
C651
D653
R666
GND
170V
+85V
C662
R654
D652
C655
J660
IC651
C660
C661
VR651
R662
R661
R659
C659
R655
J655
R656
R660
R657
R663
C658
ZD658
R667
R668
J654
C664
C663
L653
K1
K2
K3
K4
TP651
NEC PWE-270A
JVCH75V0

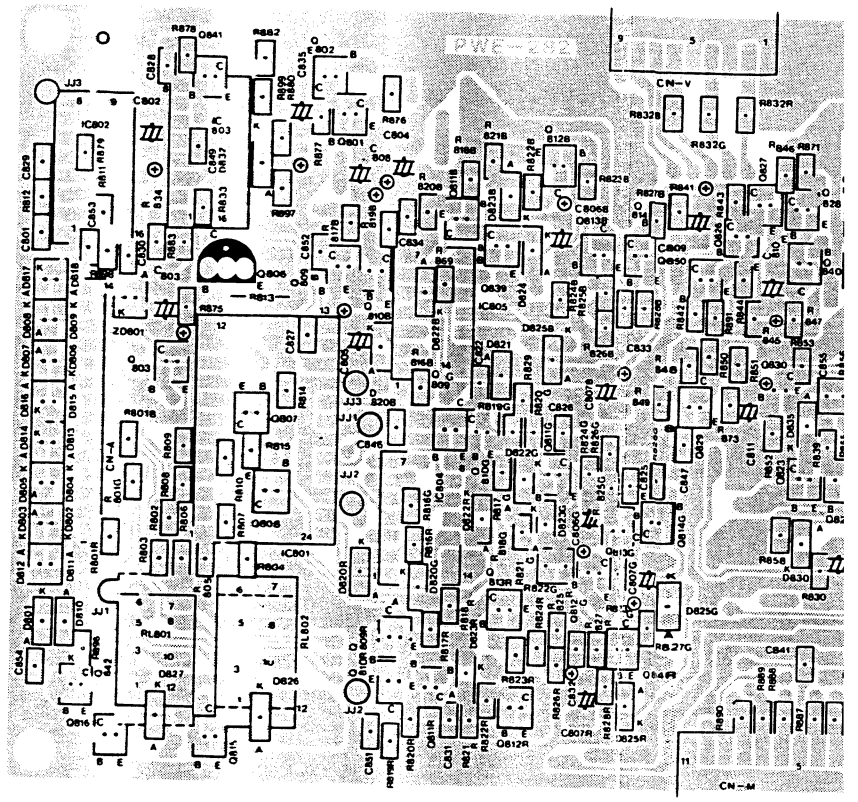
SW REG PWB ASSY (PWE-270A)
– Solder side –
Model JC-1404HMN


L601
C618
ZD602
R623
Q601
D606
ZD601
R605
NEC
E-270B
R626
R620
ZD603
Q604
R622
C617
CN604
IC601
R618
R619
C615
R617
R609
J642
D602
CN603
C616
C619
R612
R614
R616
R625
C614
R621
R615
J641
JVCH75V0

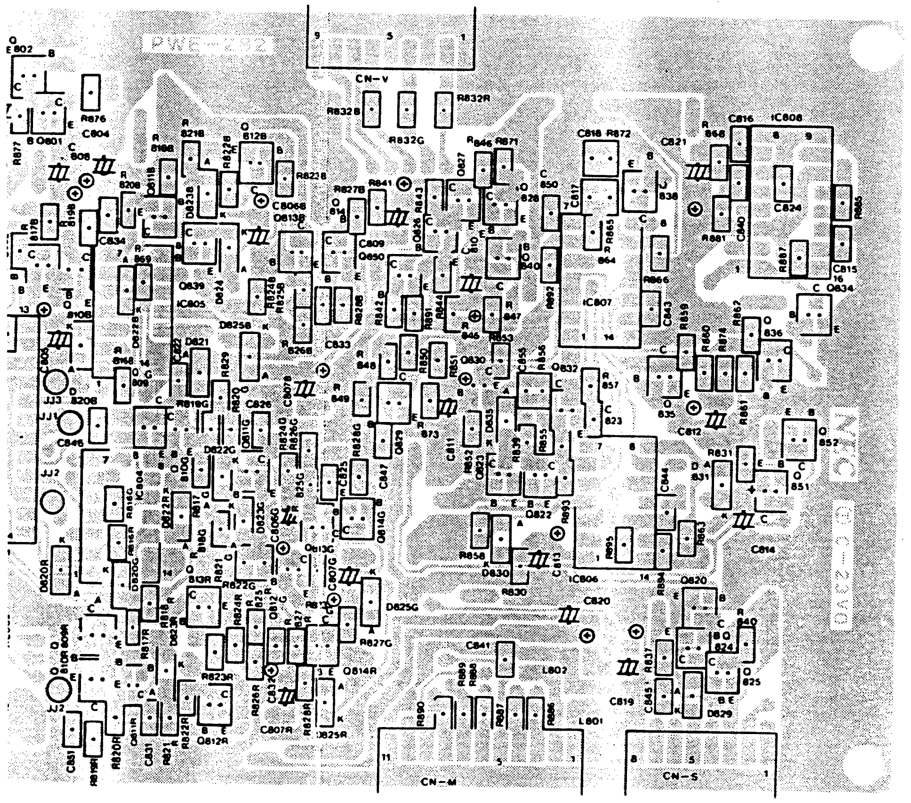
SW REG PWB ASSY (PWE-270B)
– Solder side –
Model JC-1404HMN


NEC
PWE-282 72502821
SUB UNIT 79100011
CN-V
IC808
IC807
IC806
IC805
IC804
IC803
IC802
IC 801
Q806
R813
C835
C804
C808
C802
C803
C821
C810
C809
C806B
C805
C807B
C812
C811
C814
C813
C820
C806G
C807G
C807R
C806R
C819
L801
L802
CN-S
CN-M
CN-A
JJ1
JJ2
JJ3
RL 802
RL801
HDK
V377T

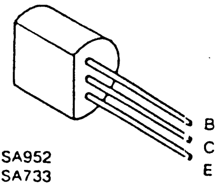
SUB PWB UNIT (PWE-282)
—Component side—
Models JC-1404HME-1/EE-1/ED-1/N


PWE-282
CN-V
CN-A
CN-M
RL801
RL802
IC801
IC802
IC805
Q806
JJ1
JJ2
JJ3

SUB PWB UNIT (PWE-282)
—Solder side—
Models JC-1404HME-1/EE-1/ED-1/N

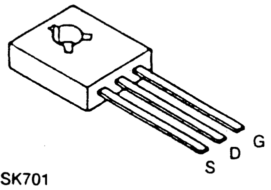

PWE-282
CN-V
CN-M
CN-S

SUB PWB UNIT (PWE-282)
—Solder side—
Models JC-1404HME-1/EE-1/ED-1/N

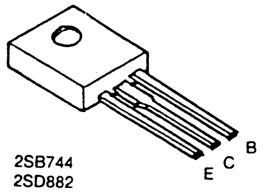


2SA952
2SA733
2SC945
2SC2002

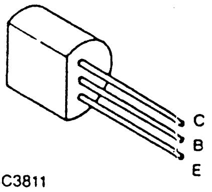
AA1L4M
2SC1473
2SA1018



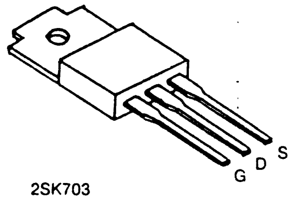
2SK701



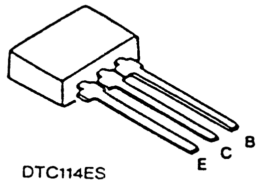
2SB744
2SD882
2SD986



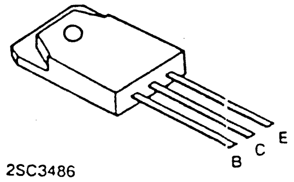
2SC3811



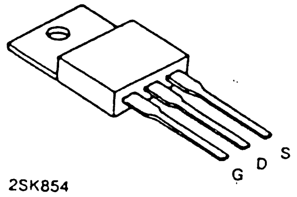
2SK703
2SK752
2SK758



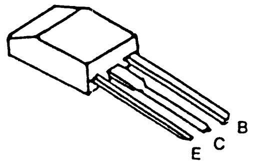
DTC114ES



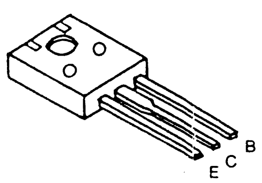
2SC3486



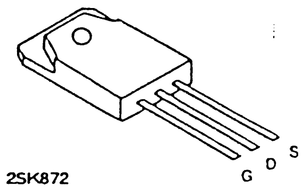
2SK854



2SD1581



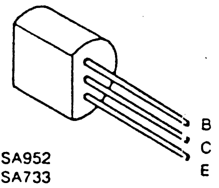
2SC3953



2SK872

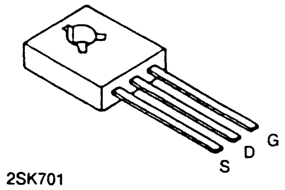
NOTE.

E: EMITTER
B: BASE
C: COLLECTOR
G: GATE
D: DRAIN
S: SOURCE

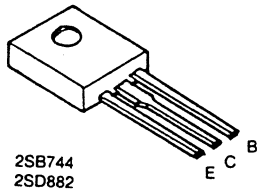


2SA952
2SA733
2SC945
2SC2002

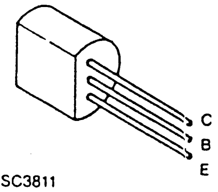
AA1L4M
2SC1473
2SA1018



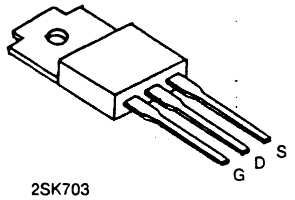
2SK701



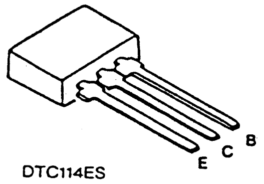
2SB744
2SD882
2SD986



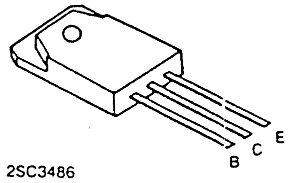
2SC3811



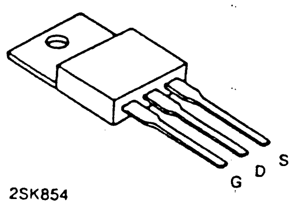
2SK703
2SK752
2SK758



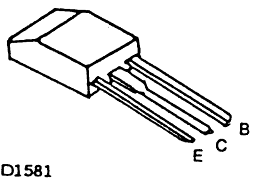
DTC114ES



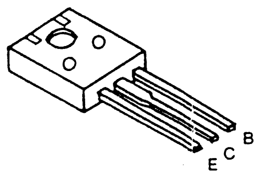
2SC3486



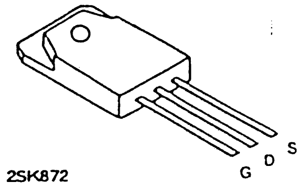
2SK854



2SD1581



2SC3953

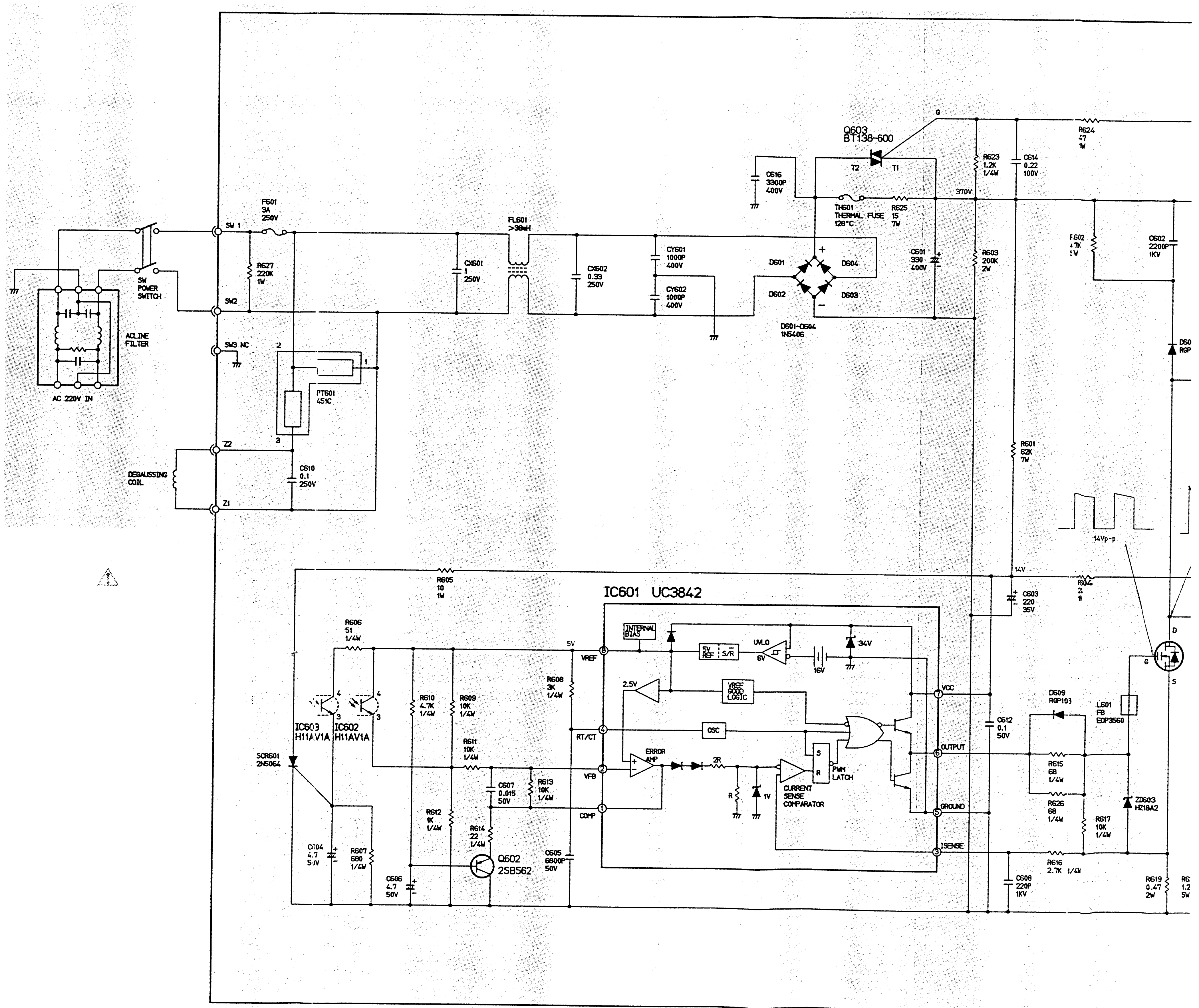


2SK872

NOTE:

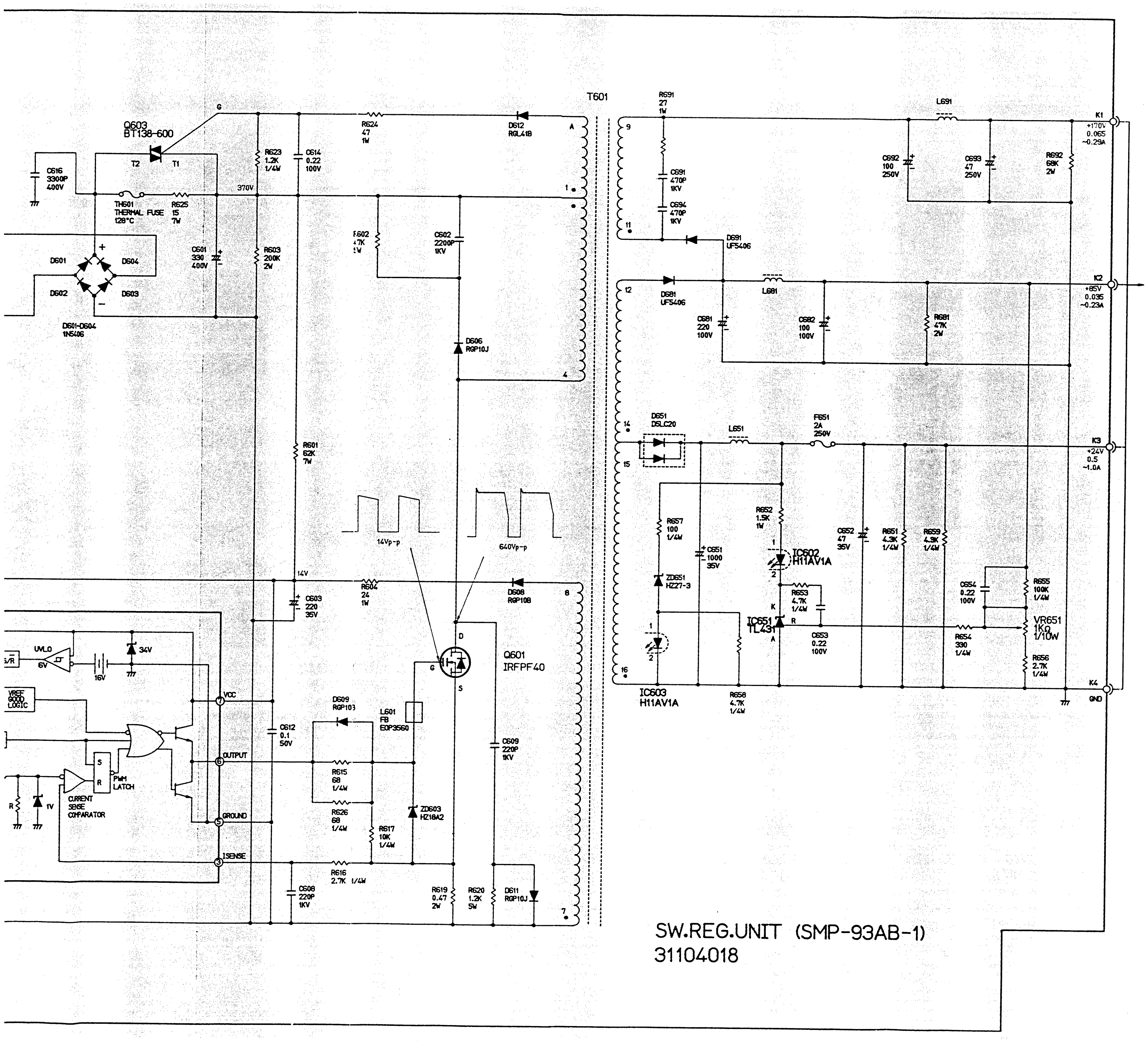
E: EMITTER
B: BASE
C: COLLECTOR
G: GATE
D: DRAIN
S: SOURCE

MODEL JC-1404HME-1/EE-1
SCHEMATIC DIAGRAM 1

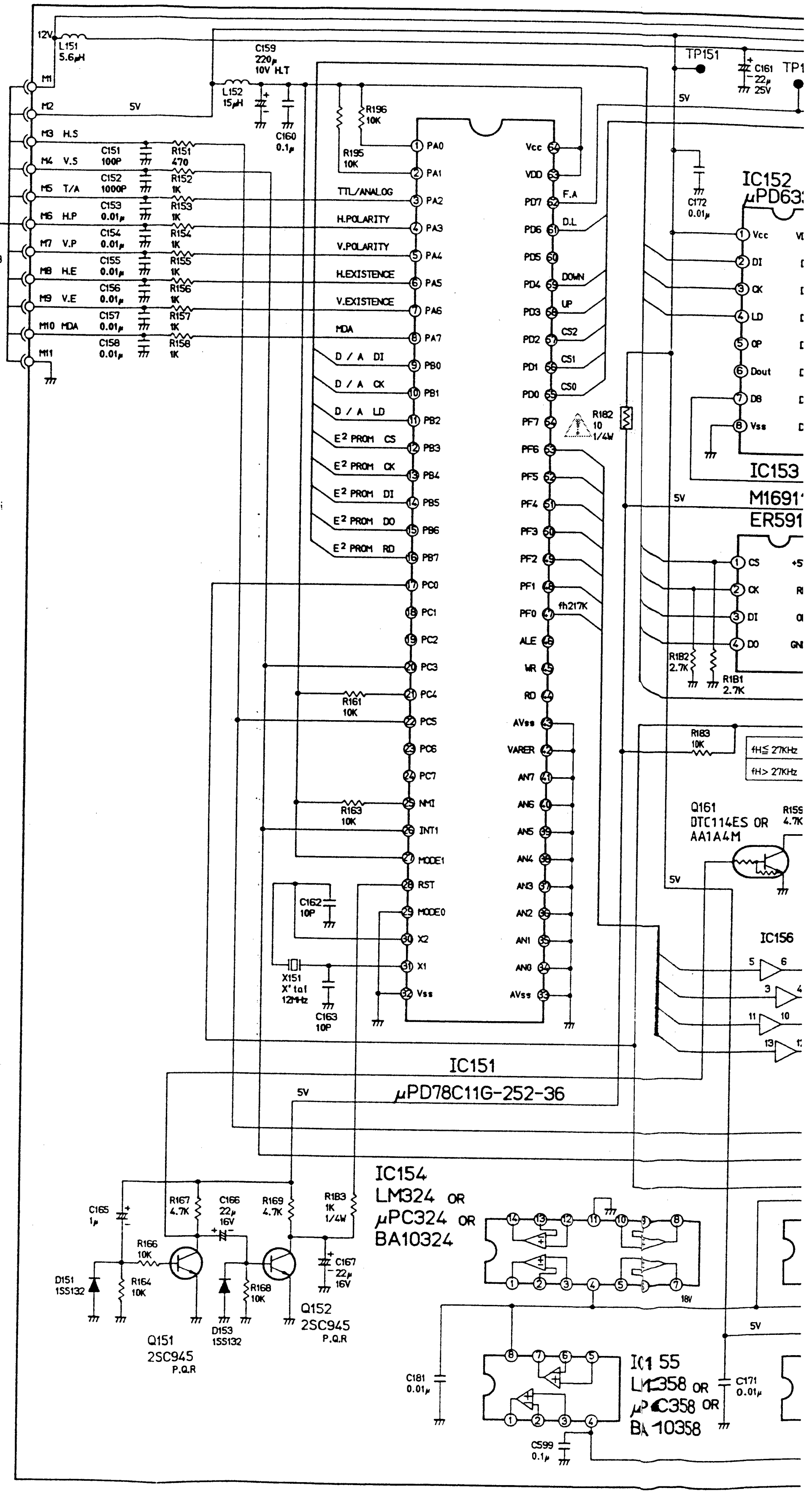

AC 220V IN
ACLINE FILTER
SW POWER SWITCH
SW 1
SW2
SW3 NC
Z2
Z1
DEGAUSSING COIL
F601 3A 250V
R627 220K 1W
PT601 451C
1
2
3
C610 0.1 250V
CX601 1 250V
FL601 >38mH
CX602 0.33 250V
CY601 1000P 400V
CY602 1000P 400V
C616 3300P 400V
Q603 BT138-600
T2
T1
G
TH601 THERMAL FUSE 128°C
R625 15 7W
D601
D602
D603
D604
D601~D604 1N5406
C601 330 400V
370V
R623 1.2K 1/4W
C614 0.22 100V
R603 200K 2W
R624 47 1W
R602 4.7K 5W
C602 2200P 1KV
R601 62K 7W
14Vp-p
14V
R604 24 1W
C603 220 35V
R605 10 1W
IC601 UC3842
INTERNAL BIAS
5V REF
S/R
UVLO
6V
16V
34V
2.5V
VREF GOOD LOGIC
OSC
ERROR AMP
2R
R
1V
CURRENT SENSE COMPARATOR
S
R
PWM LATCH
VREF 8
RT/CT 4
VFB 2
COMP 1
VCC 7
OUTPUT 6
GROUND 5
ISENSE 3
5V
R606 51 1/4W
IC603 H11AV1A
IC602 H11AV1A
4
3
SCR601 2N5064
C604 4.7 50V
R607 680 1/4W
R610 4.7K 1/4W
R609 10K 1/4W
R611 10K 1/4W
R612 1K 1/4W
R608 3K 1/4W
C607 0.015 50V
R613 10K 1/4W
R614 22 1/4W
Q602 2SB562
C606 4.7 50V
C605 6800P 50V
C612 0.1 50V
C608 220P 1KV
D609 RGP103
R615 68 1/4W
R626 68 1/4W
R617 10K 1/4W
R616 2.7K 1/4W
L601 FB EOP3560
ZD603 HZ18A2
D
G
S
R619 0.47 2W
D60
RGP

78163741

MODEL JC-1404HME-1/EE-1
SCHEMATIC DIAGRAM 2

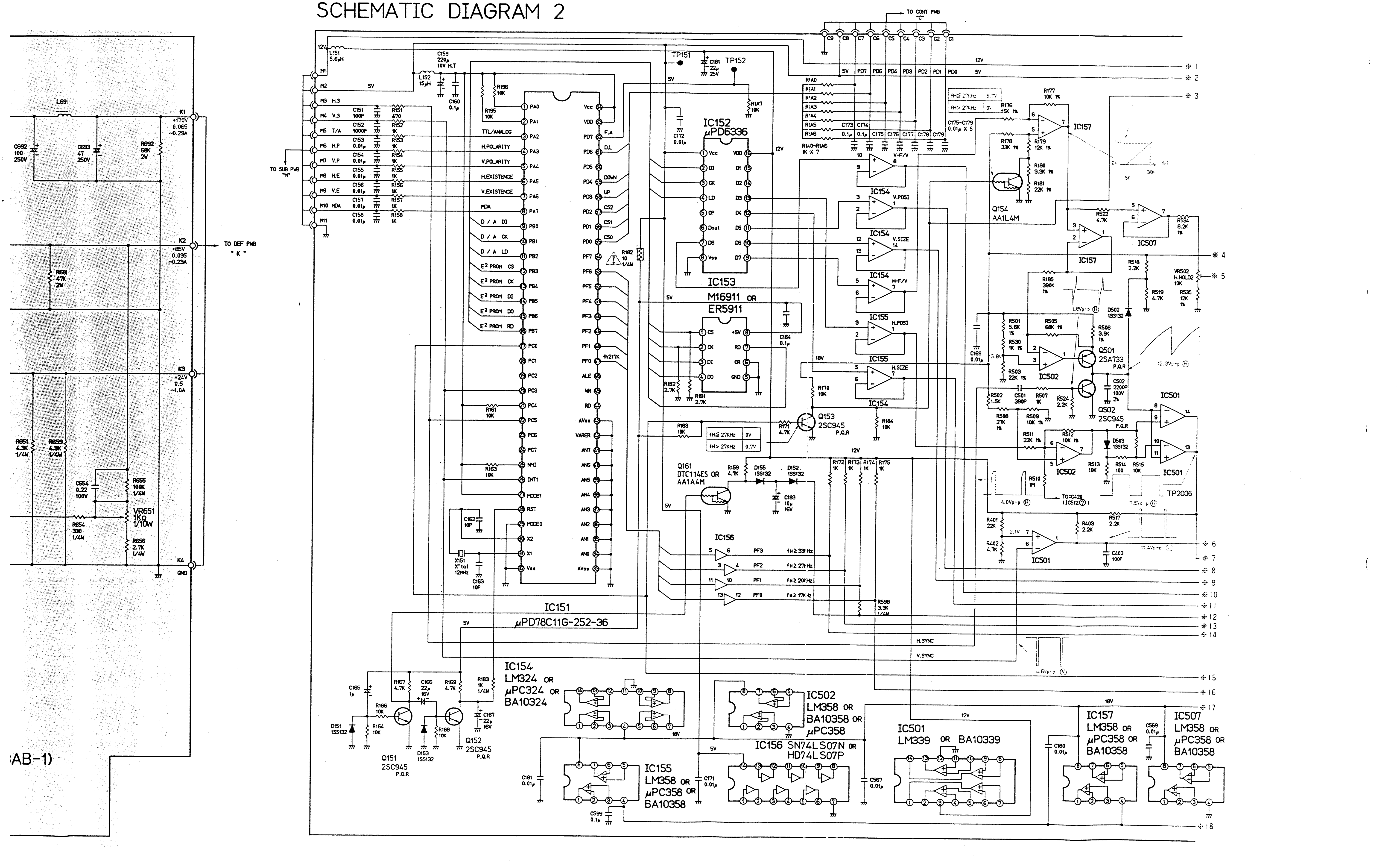

T601
Q603
BT138-600
C616
3300P
400V
TH601
THERMAL FUSE
128°C
R625
15
7W
D601-D604
1N5406
R623
1.2K
1/4W
C614
0.22
100V
C601
330
400V
R603
200K
2W
R624
47
1W
D612
RGL41B
F602
47K
1W
C602
2200P
1KV
D606
RGP10J
R601
62K
7W
14Vp-p
640Vp-p
C603
220
35V
R604
24
1W
D608
RGP10B
Q601
IRFPF40
UVLO
6V
16V
34V
VREF
GOOD
LOGIC
PWM
LATCH
CURRENT
SENSE
COMPARATOR
VCC
OUTPUT
GROUND
ISENSE
C612
0.1
50V
D609
RGP103
L601
FB
E0P3560
R615
68
1/4W
R626
68
1/4W
R617
10K
1/4W
ZD603
HZ18A2
R616
2.7K 1/4W
C608
220P
1KV
R619
0.47
2W
R620
1.2K
5W
D611
RGP10J
C609
220P
1KV
R691
27
1W
C691
470P
1KV
C694
470P
1KV
D691
UF5406
L691
C692
100
250V
C693
47
250V
R692
68K
2W
K1
+170V
0.065
~0.29A
D681
UF5406
L681
C681
220
100V
C682
100
100V
R681
47K
2W
K2
+85V
0.035
~0.23A
TO DEF PWB
"K"
D651
D5LC20
L651
F651
2A
250V
K3
+24V
0.5
~1.0A
R657
100
1/4W
ZD651
HZ27-3
C651
1000
35V
R652
1.5K
1W
IC602
H11AV1A
C652
47
35V
R651
4.3K
1/4W
R659
4.3K
1/4W
R653
4.7K
1/4W
IC651
TL431
C654
0.22
100V
R655
100K
1/4W
VR651
1KΩ
1/10W
C653
0.22
100V
R654
330
1/4W
R656
2.7K
1/4W
K4
GND
IC603
H11AV1A
R658
4.7K
1/4W

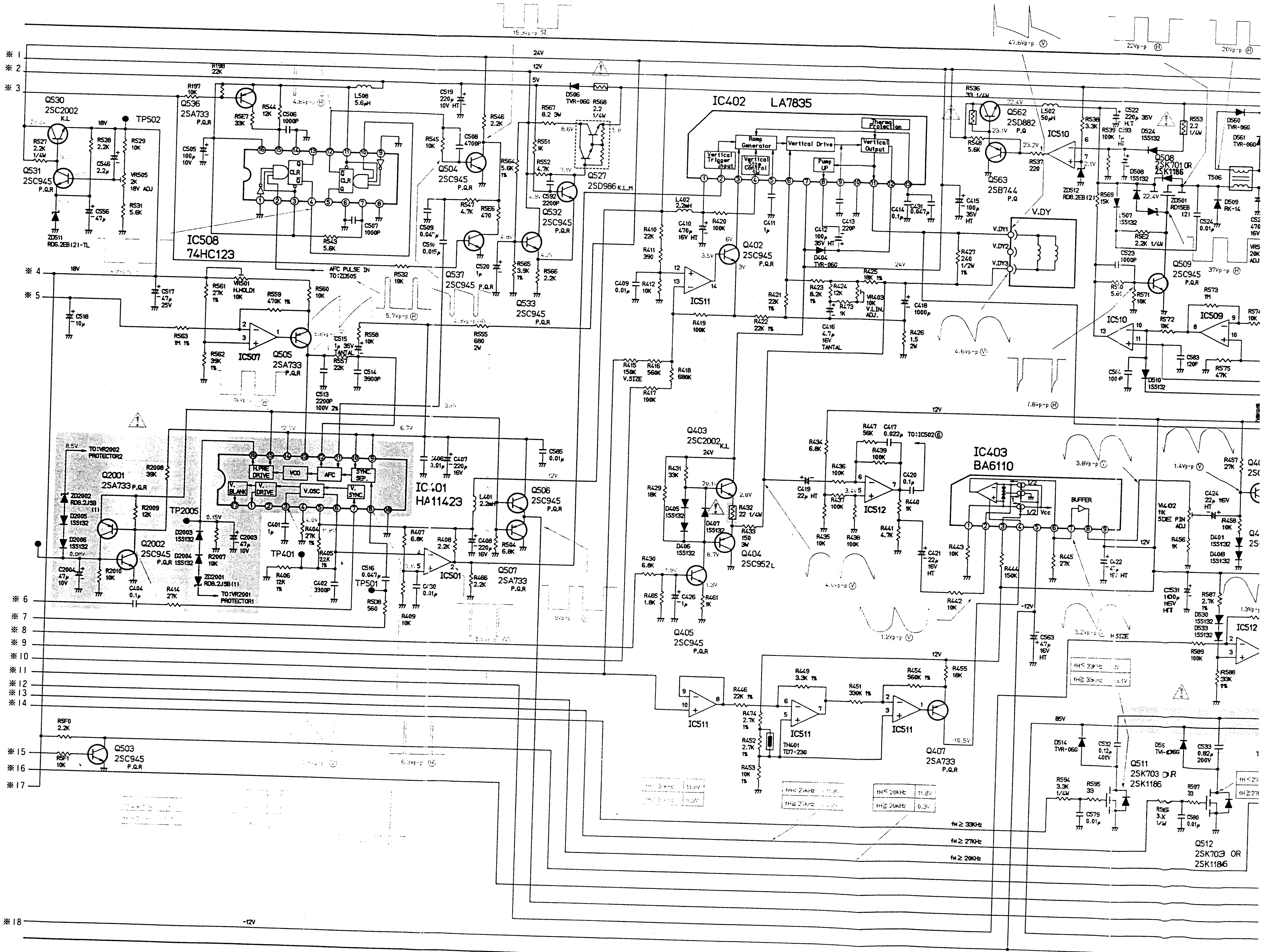
SW.REG.UNIT (SMP-93AB-1)
31104018

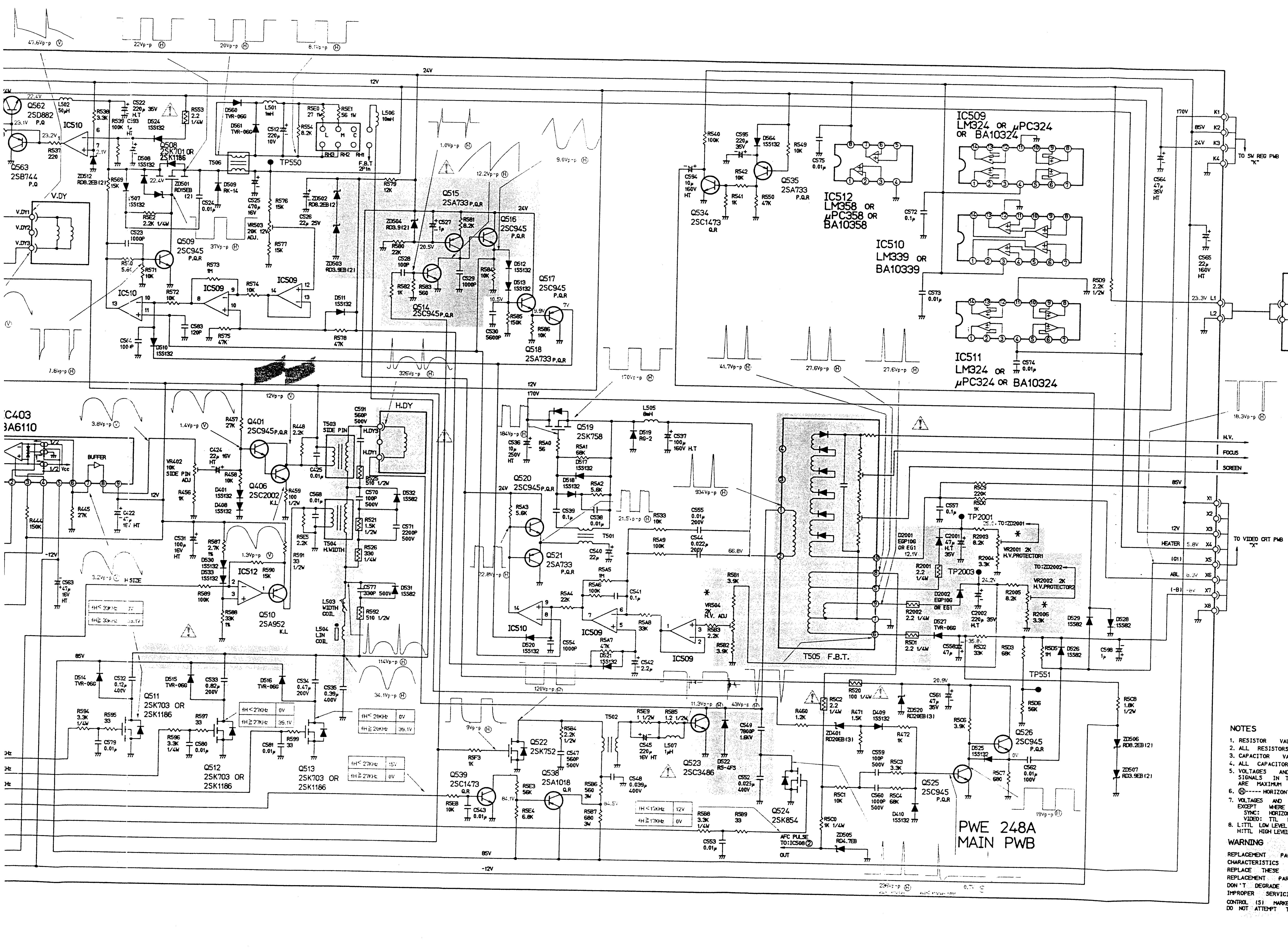

L151
5.6μH
C159
220μ
10V H.T
L152
15μH
C160
0.1μ
TO SUB PWB
"M"
H.S
V.S
T/A
H.P
V.P
H.E
V.E
HDA
TP151
C161
22μ
25V
IC152
μPD63
R195
10K
R196
10K
TTL/ANALOG
H.POLARITY
V.POLARITY
H.EXISTENCE
V.EXISTENCE
D/A DI
D/A CK
D/A LD
E² PROM CS
E² PROM CK
E² PROM DI
E² PROM DO
E² PROM RD
IC153
M1691
ER591
R182
10
1/4W
fh217K
R161
10K
R163
10K
R183
10K
fH≦27KHz
fH>27KHz
Q161
DTC114ES OR
AA1A4M
X151
X'tal
12MHz
C162
10P
C163
10P
IC156
IC151
μPD78C11G-252-36
IC154
LM324 OR
μPC324 OR
BA10324
Q151
2SC945
P.Q.R
Q152
2SC945
P.Q.R
D151
1SS132
D153
1SS132
R167
4.7K
R169
4.7K
C166
22μ
16V
C167
22μ
16V
R166
10K
R164
10K
R168
10K
C165
1μ
IC155
LM358 OR
μPC358 OR
BA10358
C181
0.01μ
C171
0.01μ
C599
0.1μ

MODEL JC-1404HME-1/EE-1
SCHEMATIC DIAGRAM 2

RUN NO.1


TO CONT PWB "C"
C9 C8 C7 C6 C5 C4 C3 C2 C1
5V PD7 PD6 PD4 PD3 PD2 PD1 PD0 5V 12V
TO SUB PWB "M"
M1 M2 M3 H.S M4 V.S M5 T/A M6 H.P M7 V.P M8 H.E M9 V.E M10 MDA M11
L151 5.6μH
L152 15μH
C159 220μ 10V H.T
C160 0.1μ
TP151
TP152
C161 22μ 25V
IC151
μPD78C11G-252-36
TTL/ANALOG
H.POLARITY
V.POLARITY
H.EXISTENCE
V.EXISTENCE
MDA
D/A DI
D/A CK
D/A LD
E² PROM CS
E² PROM CK
E² PROM DI
E² PROM DO
E² PROM RD
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
NMI INT1 MODE1 RST MODE0 X2 X1 Vss
Vcc VDD PD7 PD6 PD5 PD4 PD3 PD2 PD1 PD0
PF7 PF6 PF5 PF4 PF3 PF2 PF1 PF0
ALE WR RD AVss VAREF AN7 AN6 AN5 AN4 AN3 AN2 AN1 AN0 AVss
F.A D.L DOWN UP CS2 CS1 CS0 fH217K
R182 10 1/4W
X151 X'tal 12MHz
C162 10P
C163 10P
R195 10K
R196 10K
R161 10K
R163 10K
IC152
μPD6336
Vcc DI CK LD OP Dout D8 Vss VDD D1 D2 D3 D4 D5 D6 D7
IC153
M16911 OR ER5911
CS CK DI DO +5V RD OR GND
C164 0.1μ
C172 0.1μ
R1A7 10K
R1A0 R1A1 R1A2 R1A3 R1A4 R1A5 R1A6
R1A0-R1A6 1K X 7
C173 0.1μ C174 0.1μ C175 C176 C177 C178 C179
C175-C179 0.01μ X 5
IC154 V-F/V
IC154 V.POSI
IC154 V.SIZE
IC154 H-F/V
IC155 H.POSI
IC155 H.SIZE
IC154
IC157
IC507
IC502
IC501
R176 15K 1%
R177 10K 1%
R178 33K 1%
R179 12K 1%
R180 3.3K 1%
R181 22K 1%
fH≦27KHz 5.7V
fH>27KHz 0V
Q154 AA1L4M
R522 4.7K
R534 8.2K 1%
R518 2.2K
R519 4.7K
VR502 H.HOLD2 10K
R535 12K 1%
R185 390K 1%
D502 1SS132
1.8Vp-p Ⓗ
R501 5.6K 1%
R530 1K 1%
R505 68K 1%
R506 3.9K 1%
Q501 2SA733 P.Q.R
R503 22K 1%
C169 0.01μ
C501 390P
R502 1.5K
R507 1K
R524 2.2K
C502 2200P 100V 2%
Q502 2SC945
12.3Vp-p Ⓗ
R508 27K 1%
R509 10K 1%
R511 22K 1%
R512 10K 1%
D503 1SS132
R513 10K
R514 100
R515 10K
R510 1M
TO:C420 (IC512⑦)
4.0Vp-p Ⓗ
7.5Vp-p Ⓗ
TP2006
R401 22K
R402 4.7K
R403 2.2K
R517 2.2K
C403 100P
2.1V
11.4Vp-p Ⓥ
Q153 2SC945 P.Q.R
R170 10K
R171 4.7K
R183 10K
R184 10K
fH≦27KHz 0V
fH>27KHz 0.7V
18V
Q161 DTC114ES OR AA1A4M
R159 4.7K
D155 1SS132
D152 1SS132
C183 10μ 16V
R172 1K R173 1K R174 1K R175 1K
R182 2.7K
R181 2.7K
IC156
PF3 fH≧33KHz
PF2 fH≧27KHz
PF1 fH≧20KHz
PF0 fH≧17KHz
R598 3.3K 1/4W
H.SYNC
V.SYNC
4.6Vp-p Ⓥ
※1 ※2 ※3 ※4 ※5 ※6 ※7 ※8 ※9 ※10 ※11 ※12 ※13 ※14 ※15 ※16 ※17 ※18
C165 1μ
D151 1SS132
R166 10K
R164 10K
R167 4.7K
C166 22μ 16V
R169 4.7K
R168 10K
D153 1SS132
R183 1K 1/4W
C167 22μ 16V
Q151 2SC945 P.Q.R
Q152 2SC945 P.Q.R
IC154 LM324 OR μPC324 OR BA10324
IC502 LM358 OR BA10358 OR μPC358
IC155 LM358 OR μPC358 OR BA10358
IC156 SN74LS07N OR HD74LS07P
IC501 LM339 OR BA10339
IC157 LM358 OR μPC358 OR BA10358
IC507 LM358 OR μPC358 OR BA10358
C181 0.01μ
C171 0.01μ
C599 0.1μ
C567 0.01μ
C180 0.01μ
C569 0.01μ
L691
C692 100 250V
C693 47 250V
R692 68K 2W
K1 +170V 0.065 ~0.29A
K2 +85V 0.035 ~0.23A
TO DEF PWB "K"
R681 47K 2W
K3 +24V 0.5 ~1.0A
R651 4.3K 1/4W
R659 4.3K 1/4W
C654 0.22 100V
R655 100K 1/4W
VR651 1KΩ 1/10W
R654 390 1/4W
R656 2.7K 1/4W
K4 GND
AB-1)


IC402 LA7835
IC403 BA6110
IC508 74HC123
IC401 HA11423
IC507
IC501
IC510
IC511
IC512
IC509
Q530 2SC2002 K.L
Q531 2SC945 P.Q.R
Q536 2SA733 P.Q.R
Q504 2SC945 P.Q.R
Q537 2SC945 P.Q.R
Q532 2SC945 P.Q.R
Q533 2SC945 P.Q.R
Q527 2SD986 K.L.M
Q505 2SA733 P.Q.R
Q506 2SC945 P.Q.R
Q507 2SA733 P.Q.R
Q2001 2SA733 P.Q.R
Q2002 2SC945 P.Q.R
Q402 2SC945 P.Q.R
Q403 2SC2002 K.L
Q404 2SC952 L
Q405 2SC945 P.Q.R
Q407 2SA733 P.Q.R
Q503 2SC945 P.Q.R
Q562 2SD882 P.Q
Q563 2SB744 P.Q
Q508 2SK701 OR 2SK1186
Q509 2SC945 P.Q.R
Q511 2SK703 OR 2SK1186
Q512 2SK703 OR 2SK1186
TP502
TP2005
TP401
TP501
V.DY
T506
Ramp Generator
Vertical Drive
Thermal Protection
Vertical Output
Vertical Trigger Input
Vertical Size Control SW
Pump UP
H.PRE DRIVE
VCO
AFC
SYNC. SEP.
V. BLANK
V. DRIVE
V.OSC
V. SYNC.
BUFFER
AFC PULSE IN TO:ZD505
TO:VR2002 PROTECTOR2
TO:VR2001 PROTECTOR1
TO:IC502⑥
VR501 H.HOLD
VR505 2K 18V ADJ
VR403 10K V.LIN. ADJ.
R415 150K V.STZE
VR402 1K SIDE PIN ADJ
H SIZE
fH ≥ 33KHz
fH ≥ 27KHz
fH ≥ 20KHz
fH < 20KHz 11.8V
fH ≥ 20KHz 0.3V
24V
12V
5V
18V
6.7V
85V
-12V
※1
※2
※3
※4
※5
※6
※7
※8
※9
※10
※11
※12
※13
※14
※15
※16
※17
※18


PWE 248A
MAIN PWB
PWE 248C
IC510
IC509
IC512
IC403
BA6110
IC509 LM324 OR μPC324 OR BA10324
IC512 LM358 OR μPC358 OR BA10358
IC510 LM339 OR BA10339
IC511 LM324 OR μPC324 OR BA10324
Q562 2SD882 P.Q
Q563 2SB744 P.Q
Q508 2SK701 OR 2SK1186
Q509 2SC945 P.Q.R
Q515 2SA733 P.Q.R
Q516 2SC945 P.Q.R
Q514 2SC945 P.Q.R
Q517 2SC945 P.Q.R
Q518 2SA733 P.Q.R
Q534 2SC1473 Q.R
Q535 2SA733 P.Q.R
Q401 2SC945 P.Q.R
Q406 2SC2002 K.L
Q510 2SA952 K.L
Q519 2SK758
Q520 2SC945 P.Q.R
Q521 2SA733 P.Q.R
Q511 2SK703 OR 2SK1186
Q512 2SK703 OR 2SK1186
Q513 2SK703 OR 2SK1186
Q522 2SK752
Q539 2SC1473 Q.R
Q538 2SA1018 Q.R
Q523 2SC3486
Q524 2SK854
Q526 2SC945 P.Q.R
Q525 2SC945 P.Q.R
T505 F.B.T.
T503 SIDE PIN
T504 H.WIDTH
L503 WIDTH COIL
L504 LIN COIL
H.DY
V.DY
TP550
TP551
TP2001
TP2003
VR2001 2K H.V.PROTECTOR1
VR2002 2K H.V.PROTECTOR2
VR504 2K H.V. ADJ
VR503 20K 12V ADJ.
VR402 10K SIDE PIN ADJ
H SIZE
BUFFER
TO SW REG PWB "K"
TO VIDEO CRT PWB "X"
H.V.
FOCUS
SCREEN
HEATER
(G1)
ABL
(-B)
AFC PULSE TO:IC508②
24V
12V
85V
170V
-12V

PD0 (CS0)	PD1 (CS1)	PD2 (CS2)
L	H	H
H	L	L
H	L	H
H	H	L
H	H	H

PD3	PD4	
H	L	UP
L	H	DOWN
H	H	DISA

PD6	PD7	
L	L	USER
L	H	FACT
H	L	DATA
H	H	FACT

PA2 (TTL / ANALOG)	PA3 (HP)	PA4 (VP)	PA5 (HE)	PA6 (VE)	PA (MOD
—	—	—	—	—	L
—	—	—	—	—	L
—	L	H	—	—	L
—	H	L	—	—	L
—	H	H	—	—	L
—	—	—	—	—	L
—	—	—	L	L	L
—	L	L	H	H	L
H	—	—	—	—	H
L	—	—	—	—	L
—	—	—	—	—	L
H	—	—	—	—	L
—	L	L	—	—	L
L	—	—	—	—	H
—	L	H	H	H	L
—	H	L	H	H	L
—	H	H	H	H	L

NOTES

1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1.000.000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICA
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED.
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDI
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACT SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS C ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATI
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE. 22KHz SEPARATE SYNC. TTL LEVEL POSIT
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL

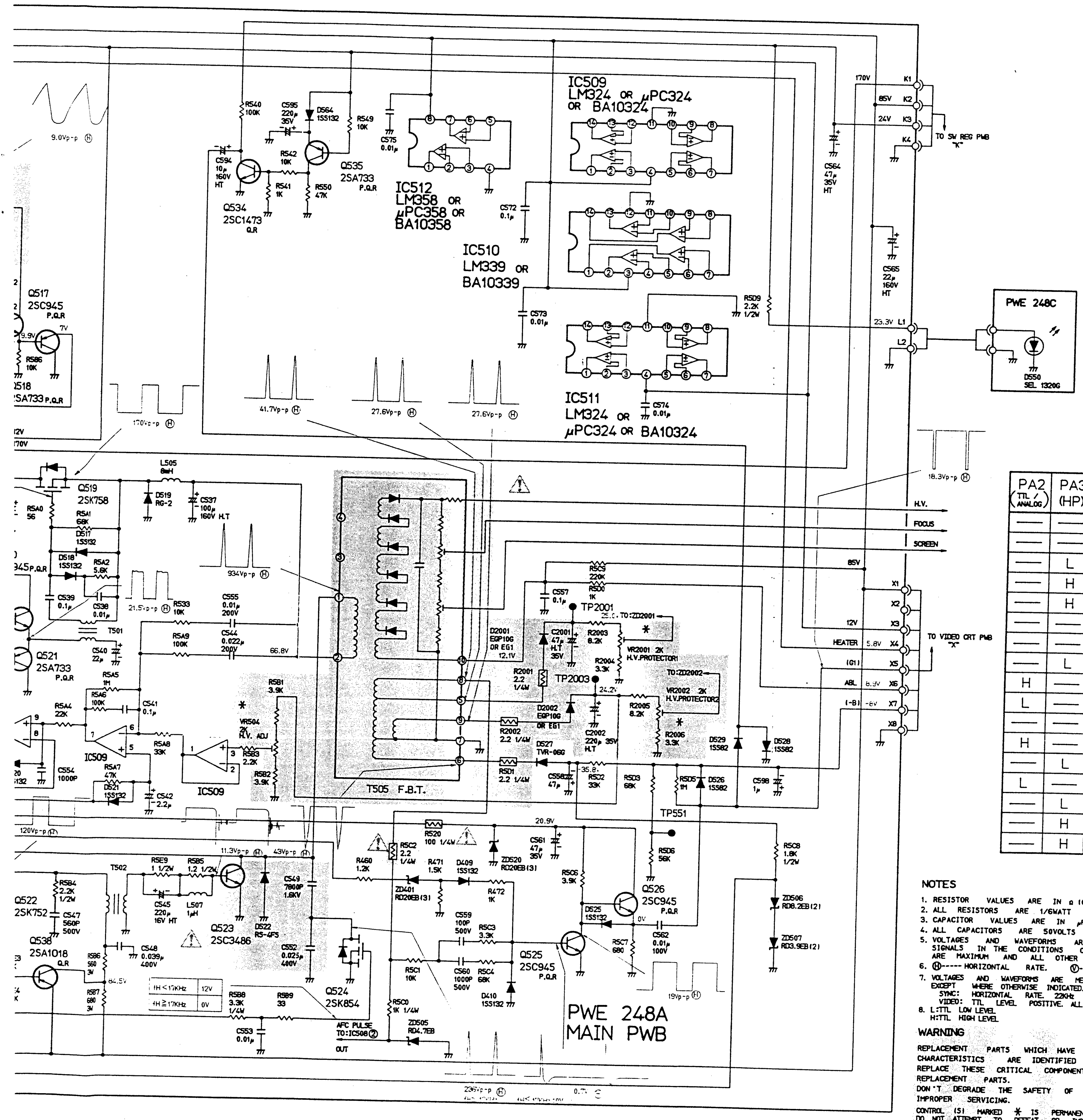
WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEM REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.

DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

CONTROL (S) MARKED ✱ IS PERMANENTLY FROZEN.
DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

RUN NO.1


IC509
LM324 OR μPC324
OR BA10324
IC512
LM358 OR
μPC358 OR
BA10358
IC510
LM339 OR
BA10339
IC511
LM324 OR
μPC324 OR BA10324
Q534
2SC1473
Q535
2SA733
Q517
2SC945
Q519
2SK758
Q521
2SA733
Q522
2SK752
Q538
2SA1018
Q523
2SC3486
Q524
2SK854
Q525
2SC945
Q526
2SC945
T505 F.B.T.
T501
T502
TP2001
TP2003
TP551
VR2001 2K H.V.PROTECTOR
VR2002 2K H.V.PROTECTOR2
VR504 2K H.V. ADJ
TO SW REG PWB "X"
TO VIDEO CRT PWB "X"
PWE 248C
D550 SEL 1320G
H.V.
FOCUS
SCREEN
HEATER
AFC PULSE TO:IC508②
OUT
41.7Vp-p Ⓗ
27.6Vp-p Ⓗ
27.6Vp-p Ⓗ
934Vp-p Ⓗ
18.3Vp-p Ⓗ
9.0Vp-p Ⓗ
19Vp-p Ⓗ
fH < 17KHz 12V
fH ≧ 17KHz 0V
PWE 248A
MAIN PWB

PD0 (CS0)	PD1 (CS1)	PD2 (CS2)	
L	H	H	H.POSI
H	L	L	H.SIZE
H	L	H	V.POSI
H	H	L	V.SIZE
H	H	H	DISABLE

PD3	PD4	
H	L	UP
L	H	DOWN
H	H	DISABLE

PD6	PD7	
L	L	USER CONTROL MODE
L	H	FACTORY ADJ. MODE
H	L	DATA LOAD
H	H	FACTORY DATA WRITING

PA2 (TTL / ANALOG)	PA3 (HP)	PA4 (VP)	PA5 (HE)	PA6 (VE)	PA7 (MODE)	FH	FV	
—	—	—	—	—	L	(i)	(i)	CGA
—	—	—	—	—	L	(ii)	(i)	EGA
—	L	H	—	—	L	(V)	(i)	VGA 350
—	H	L	—	—	L	(V)	(i)	VGA 400
—	H	H	—	—	L	(V)	(i)	VGA 480
—	—	—	—	—	L	(Vi)	(ii)	8514/A
—	—	—	L	L	L	(Vi)	(i)	MAC II
—	L	L	H	H	L	(Vi)	(i)	800 ✱ 600(1)P.P.
H	—	—	—	—	H	—	(i)	MDA
L	—	—	—	—	L	(iV)	(i)	PGC
—	—	—	—	—	L	(iii)	(i)	EGA(2)
H	—	—	—	—	L	(iV)	(i)	EGA(3)
—	L	L	—	—	L	(V)	(i)	ANALOG(1)P.P.
L	—	—	—	—	H	—	(i)	USER
—	L	H	H	H	L	(Vi)	(i)	800 ✱ 600(2)P.N.
—	H	L	H	H	L	(Vi)	(i)	800 ✱ 600(3)N.P.
—	H	H	H	H	L	(Vi)	(i)	800 ✱ 600(4)N.N.

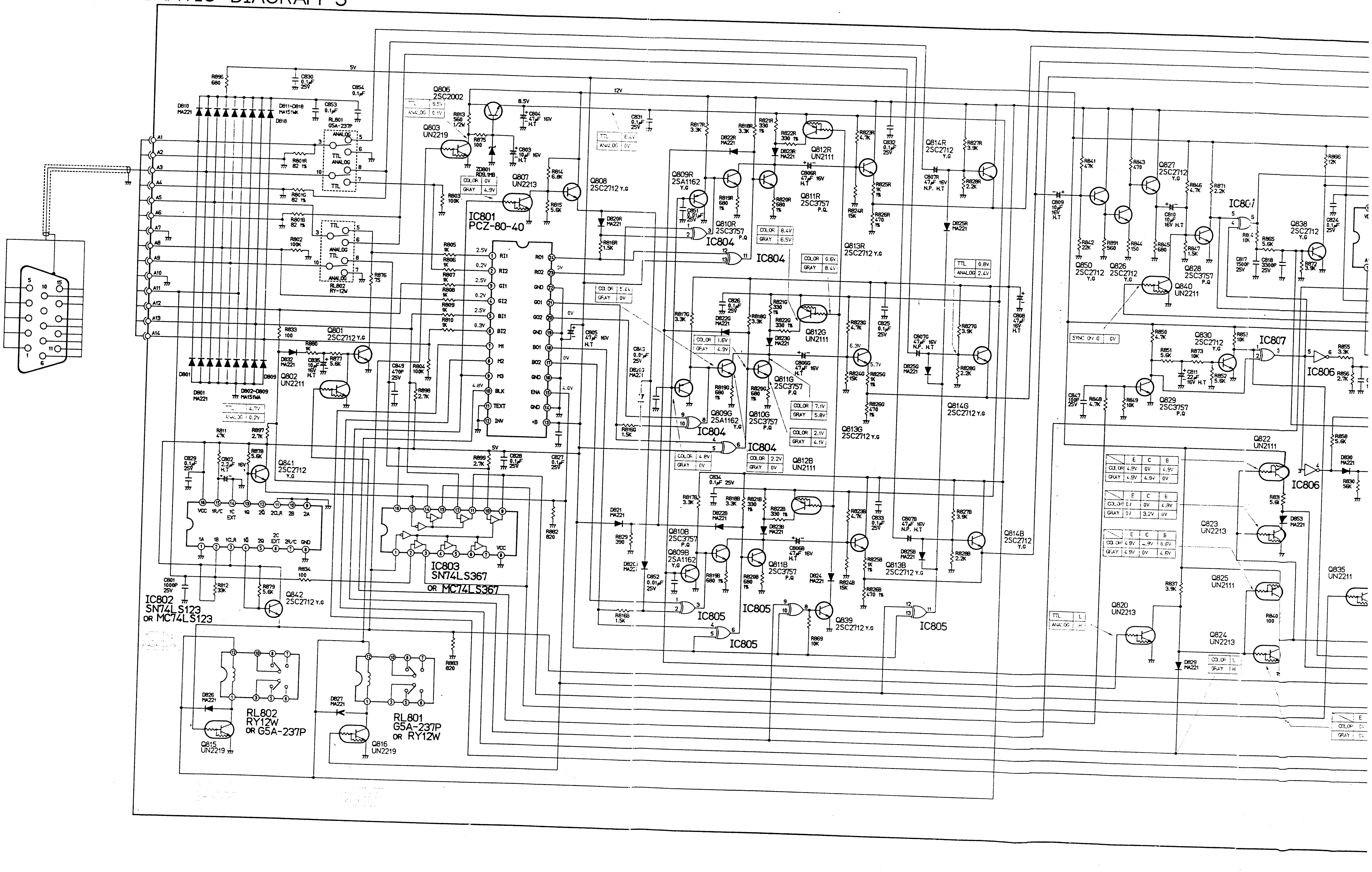
NOTES

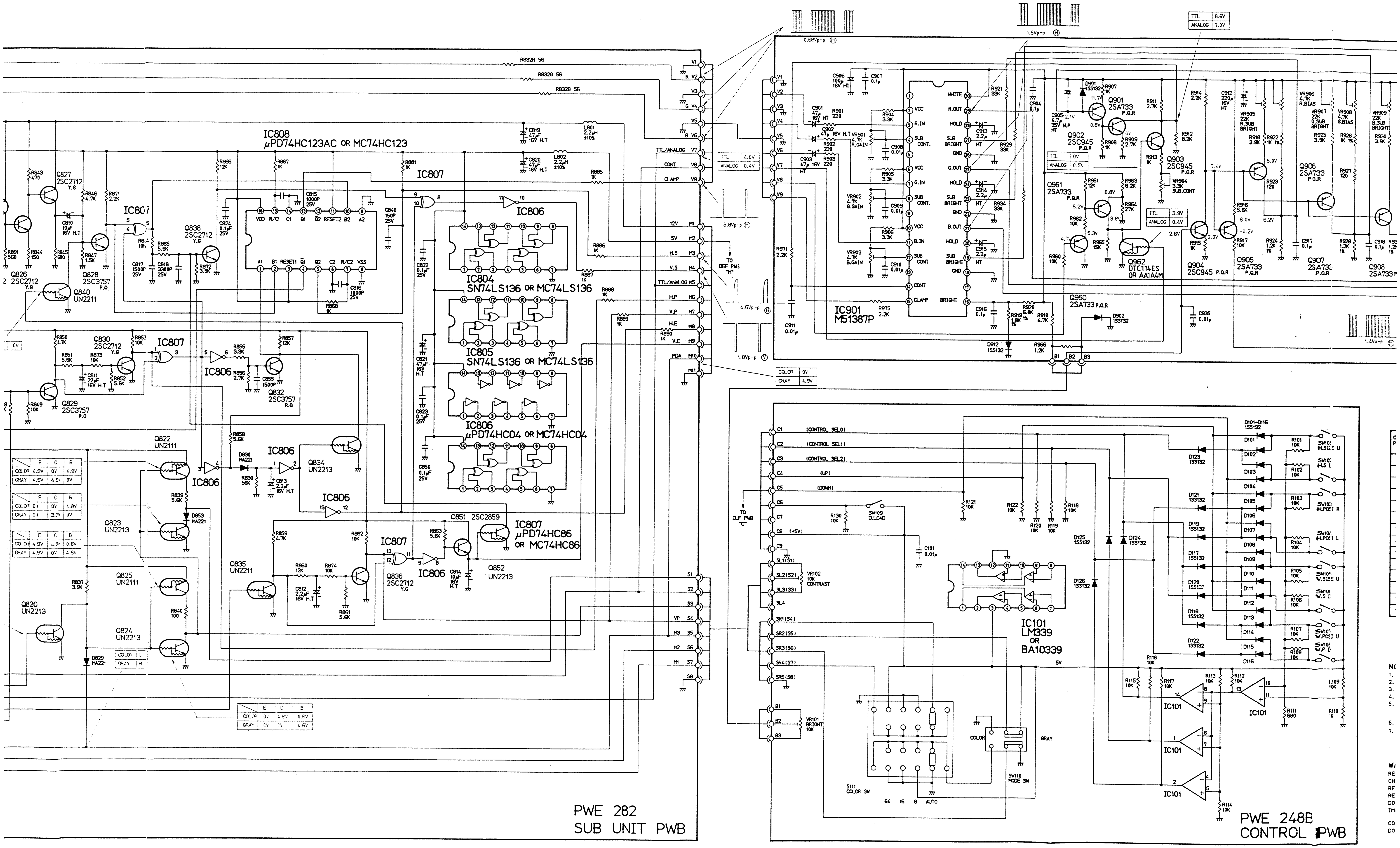
1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1.000.000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACTER SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS CONTROLS ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. AND VIDEO. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE. 22KHz SEPARATE SYNC. TTL LEVEL POSITIVE
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL
9. (i) :15.5KHz ≦ FH < 21KHz
   (ii) :21KHz ≦ FH < 23KHz
   (iii) :23KHz ≦ FH < 27.5KHz
   (iV) :27.5KHz ≦ FH < 31KHz
   (V) :31KHz ≦ FH < 33KHz
   (Vi) :33KHz ≦ FH ≦ 38KHz
10. (i) :FV < 75Hz
    (ii) :FV ≧ 75Hz

WARNING

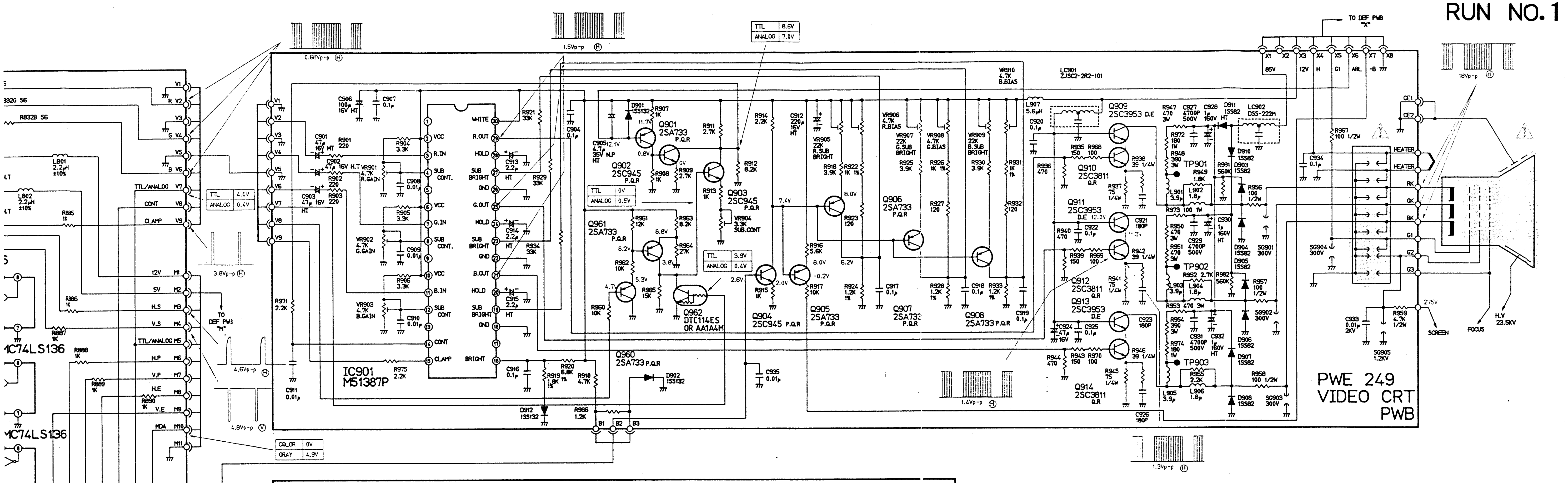
REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.
DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.
CONTROL (S) MARKED ✱ IS PERMANENTLY FROZEN.
DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

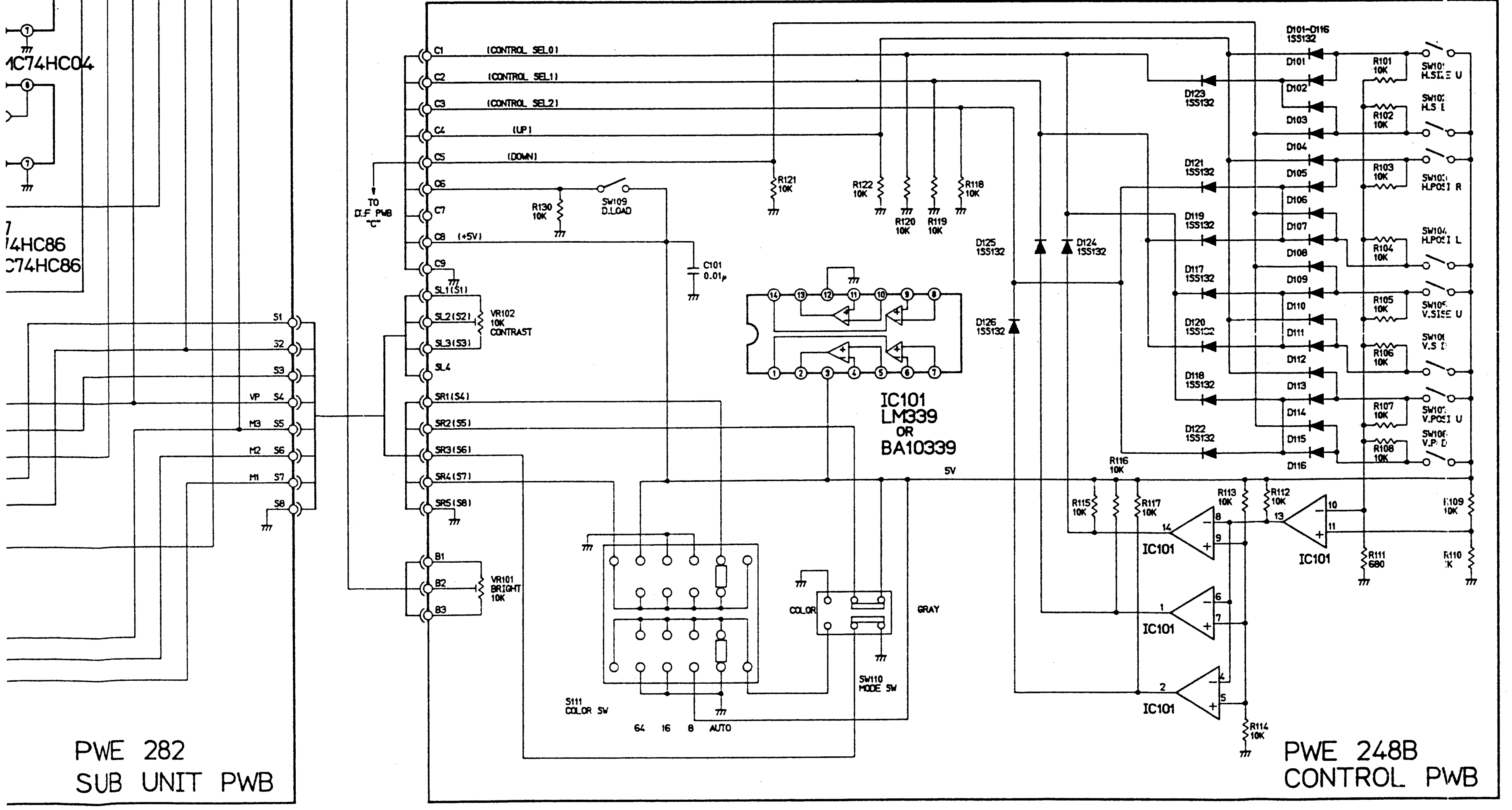
MODEL JC-1404HME-1/EE-1
SCHEMATIC DIAGRAM 3


5V
12V
8.5V
R896 680
C830 0.1μF 25V
C854 0.1μF
C853 0.1μF
D810 MA221
D811-D818 MA151WK
D816
RL801 G5A-237P
ANALOG
TTL
R801R 82 1%
R801G 82 1%
R801B 82 1%
R802 100K
RL802 RY-12W
R876 75
R833 100
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
5
10
15
1
6
11
D801
D801 MA221
D802-D809 MA151WA
D809
Q806 2SC2002
Q803 UN2219
R813 560 1/2W
R875 100
ZD801 RD9.1MB
C804 47μF 16V
C803 10μF 16V H.T
Q807 UN2213
R814 6.8K
R815 5.6K
Q808 2SC2712 Y.G
R803 100K
IC801
PCZ-80-40
R805 1K
R806 1K
R807 1K
R808 1K
R809 1K
R810 1K
RI1
RI2
GI1
GI2
BI1
BI2
M1
M2
M3
BLK
TEXT
INV
RO1
RO2
GND
GO1
GO2
BO1
BO2
ENA
+B
C805 47μF 16V H.T
Q801 2SC2712 Y.G
R880 1K
D832 MA221
C835 10μF 16V H.T
R877 5.6K
Q802 UN2211
C849 470P 25V
R804 100K
R898 2.7K
R811 47K
R897 2.7K
R878 5.6K
C829 0.1μF 25V
C802 2.2μF 16V H.T
Q841 2SC2712 Y.G
VCC
1R/C
1C EXT
1Q
2Q
2CLR
2B
2A
1A
1B
1CLR
2C EXT
2R/C
GND
R899 2.7K
C828 0.1μF 25V
C827 0.1μF 25V
R882 820
IC803
SN74LS367
OR MC74LS367
C801 1000P 25V
R812 33K
R879 5.6K
R834 100
Q842 2SC2712 Y.G
IC802
SN74LS123
OR MC74LS123
D826 MA221
RL802
RY12W
OR G5A-237P
Q815 UN2219
D827 MA221
RL801
G5A-237P
OR RY12W
Q816 UN2219
R883 820
C831 0.1μF 25V
R817R 3.3K
R818R 3.3K
R821R 330 1%
D822R MA221
R822R 330 1%
D823R MA221
Q812R UN2111
Q809R 2SA1162 Y.G
C806R 47μF 16V H.T
C851 0.01μF 25V
R819R 680 1%
R820R 680 1%
Q811R 2SC3757 P.Q
Q810R 2SC3757 P.Q
D820R MA221
R816R 1.5K
IC804
R823R 4.7K
C832 0.1μF 25V
R825R 1K 1%
R824R 15K
R826R 470 1%
Q813R 2SC2712 Y.G
Q814R 2SC2712 Y.G
R827R 3.9K
C807R 47μF 16V N.P. H.T
R828R 2.2K
D825R MA221
C826 0.1μF 25V
R817G 3.3K
D822G MA221
R818G 3.3K
R821G 330 1%
R822G 330 1%
D823G MA221
Q812G UN2111
C806G 47μF 16V
R823G 4.7K
C825 0.1μF 25V
6.3V
5.7V
R824G 15K
R825G 1K 1%
R826G 470 1%
Q813G 2SC2712 Y.G
C843 0.01μF 25V
D820G MA221
Q809G 2SA1162 Y.G
R819G 680 1%
R820G 680 1%
Q811G 2SC3757 P.Q
Q810G 2SC3757 P.Q
R816G 1.5K
C807G 47μF 16V N.P. H.T
D825G MA221
R827G 3.9K
R828G 2.2K
Q814G 2SC2712 Y.G
C808 47μF 16V H.T
Q812B UN2111
C834 0.1μF 25V
R817B 3.3K
R818B 3.3K
R821B 330 1%
D822B MA221
R822B 330 1%
D823B MA221
D821 MA221
R829 390
Q810B 2SC3757 P.Q
Q809B 2SA1162 Y.G
R819B 680 1%
R820B 680 1%
Q811B 2SC3757 P.Q
C806B 47μF 16V H.T
D820B MA221
C852 0.01μF 25V
D824 MA221
R823B 4.7K
C833 0.1μF 25V
R825B 1K 1%
R824B 15K
R826B 470 1%
Q813B 2SC2712 Y.G
C807B 47μF 16V N.P. H.T
D825B MA221
R827B 3.9K
R828B 2.2K
Q814B 2SC2712 Y.G
R816B 1.5K
IC805
Q839 2SC2712 Y.G
R869 10K
C809 10μF 16V H.T
R841 47K
R842 22K
R891 560
Q850 2SC2712 Y.G
Q826 2SC2712 Y.G
R843 470
R844 150
Q827 2SC2712 Y.G
C810 10μF 16V H.T
R845 680
R846 4.7K
R847 1.5K
R871 2.2K
Q828 2SC3757 P.Q
Q840 UN2211
IC80
R865 5.6K
C817 1500P 25V
C818 3300P 25V
Q838 2SC2712 Y.G
C824 0.1μF 25V
R872 3.9K
R866 12K
R850 4.7K
R851 5.6K
R873 10K
C811 22μF 16V H.T
Q830 2SC2712 Y.G
R852 5.6K
R853 10K
IC807
R855 3.3K
R856 2.7K
IC806
C847 100P 25V
R848 4.7K
R849 10K
Q829 2SC3757 P.Q
Q822 UN2111
R858 5.6K
D830 MA221
R830 56K
R831 5.6K
D853 MA221
Q823 UN2213
R837 3.9K
Q825 UN2111
R840 100
Q820 UN2213
Q824 UN2213
D829 MA221
Q835 UN2211
COLOR 9.5V
ANALOG 0.1V
COLOR 0V
GRAY 4.9V
TTL 8.2V
ANALOG 0V
COLOR 8.4V
GRAY 6.5V
COLOR 0.6V
GRAY 8.4V
TTL 0.8V
ANALOG 2.4V
COLOR 5.4V
GRAY 0V
COLOR 1.6V
GRAY 4.9V
COLOR 7.1V
GRAY 5.8V
COLOR 2.1V
GRAY 4.1V
COLOR 4.8V
GRAY 0V
COLOR 2.2V
GRAY 0V
TTL 4.7V
ANALOG 0.2V
SYNC ON G 0V
TTL L
ANALOG H
COLOR L
GRAY H
E C B
COLOR 4.9V 0V 4.9V
GRAY 4.9V 4.9V 0V
E C B
COLOR 0V 0V 4.8V
GRAY 0V 3.2V 0V
E C B
COLOR 4.9V 4.9V 0.6V
GRAY 4.9V 0V 4.6V
2.5V
0.2V
2.5V
0.2V
2.5V
0.3V
4.8V
0V
0V
0V
4.0V


PWE 282
SUB UNIT PWB
PWE 248B
CONTROL PWB
IC808
μPD74HC123AC OR MC74HC123
IC807
IC806
IC804
SN74LS136 OR MC74LS136
IC805
SN74LS136 OR MC74LS136
IC806
μPD74HC04 OR MC74HC04
IC807
μPD74HC86
OR MC74HC86
IC901
M51387P
IC101
LM339
OR
BA10339
Q827 2SC2712 Y.G
Q828 2SC3757 P.Q
Q826 2SC2712 Y.G
Q840 UN2211
Q838 2SC2712 Y.G
Q830 2SC2712 Y.G
Q829 2SC3757 P.Q
Q832 2SC3757 R.Q
Q822 UN2111
Q823 UN2213
Q825 UN2111
Q824 UN2213
Q820 UN2213
Q834 UN2213
Q835 UN2211
Q836 2SC2712 Y.G
Q851 2SC2859
Q852 UN2213
Q901 2SA733 P.Q.R
Q902 2SC945 P.Q.R
Q903 2SC945 P.Q.R
Q961 2SA733 P.Q.R
Q962 DTC114ES OR AA1A4M
Q960 2SA733 P.Q.R
Q904 2SC945 P.Q.R
Q905 2SA733 P.Q.R
Q906 2SA733 P.Q.R
Q907 2SA733 P.Q.R
Q908 2SA733
R832R 56
R832G 56
R832B 56
L801 2.2μH ±10%
L802 2.2μH ±10%
V1 R V2 V3 G V4 V5 B V6
TTL/ANALOG V7
CONT V8
CLAMP V9
12V M1
5V M2
H.S M3
V.S M4
TTL/ANALOG M5
H.P M6
V.P M7
H.E M8
V.E M9
MDA M10
M11
S1 S2 S3 VP S4 M3 S5 M2 S6 M1 S7 S8
TTL 4.0V
ANALOG 0.4V
TTL 8.5V
ANALOG 7.0V
TTL 0V
ANALOG 0.5V
TTL 3.9V
ANALOG 0.4V
COLOR 0V
GRAY 4.9V
0.66Vp-p Ⓗ
1.5Vp-p Ⓗ
3.8Vp-p Ⓗ
4.6Vp-p Ⓗ
4.8Vp-p Ⓥ
1.4Vp-p Ⓗ
TO DEF PWB "H"
TO D/F PWB "C"
WHITE R.OUT HOLD SUB BRIGHT GND G.OUT HOLD SUB BRIGHT GND B.OUT HOLD SUB BRIGHT GND BRIGHT
VCC R.IN SUB CONT. VCC G.IN SUB CONT. VCC B.IN SUB CONT CONT CLAMP
VR901 4.7K R.GAIN
VR902 4.7K G.GAIN
VR903 4.7K B.GAIN
VR904 3.3K SUB.CONT
VR905 22K R.SUB BRIGHT
VR906 4.7K R.BIAS
VR907 22K G.SUB BRIGHT
VR908 4.7K G.BIAS
VR909 22K B.SUB BRIGHT
C1 (CONTROL SEL0)
C2 (CONTROL SEL1)
C3 (CONTROL SEL2)
C4 (UP)
C5 (DOWN)
C6
C7
C8 (+5V)
C9
SL1(S1) SL2(S2) SL3(S3) SL4
SR1(S4) SR2(S5) SR3(S6) SR4(S7) SR5(S8)
B1 B2 B3
VR101 BRIGHT 10K
VR102 10K CONTRAST
SW109 D.LOAD
S111 COLOR SW
64 16 8 AUTO
SW110 MODE SW
COLOR GRAY
D101-D116 1SS132
SW101 H.SIZE U
SW102 H.SIZE D
SW103 H.POSI R
SW104 H.POSI L
SW105 V.SIZE U
SW106 V.SIZE D
SW107 V.POSI U
SW108 V.POSI D
5V

RUN NO.1


PWE 249
VIDEO CRT
PWB
IC901
M51387P
Q901 2SA733
Q902 2SC945
Q903 2SC945
Q904 2SC945
Q905 2SA733
Q906 2SA733
Q907 2SA733
Q908 2SA733
Q909 2SC3953
Q910 2SC3811
Q911 2SC3953
Q912 2SC3811
Q913 2SC3953
Q914 2SC3811
Q960 2SA733
Q961 2SA733
Q962 DTC114ES OR AA1A4M
TO DEF PWB "X"
TO DEF PWB "H"
HEATER
SCREEN
FOCUS
H.V 23.5KV
MC74LS136
MC74HC04
74HC86
TTL 8.6V
ANALOG 7.0V
COLOR 0V
GRAY 4.9V


PWE 282
SUB UNIT PWB
PWE 248B
CONTROL PWB
IC101
LM339
OR
BA10339
TO DEF PWB "C"
VR101 BRIGHT 10K
VR102 10K CONTRAST
S111 COLOR SW
SW110 MODE SW
COLOR
GRAY
64 16 8 AUTO
(CONTROL SEL0)
(CONTROL SEL1)
(CONTROL SEL2)
(UP)
(DOWN)
D101-D116 1SS132

CN-A PIN NO.	P/S MINI 15Pin NO.	VGA	MAC- II	PGC	TTL (EGA CGA)
1	1	R	R	R	RA GND
2	6	R.GND	R.GND	——	——
3	2	G	G (W/SYNC)	G	r
4	7	G.GND	6. G.GND	——	——
5	3	B	B	B	R
6	8	B.GND	B.GND	——	——
7	4	ID(8514)	——	——	——
8	5	GND(S.T)	——	GND	g
9	10	GND	GND	GND	V.D
10	11	ID (TO GREEN)	——	——	——
11	12	ID (TO OPEN)	——	GND	H.D
12	13	H.D	GNU	C.SYNC	G
13	14	V.D	——	MODE	B
14	15	N.C	——	GND	b

IC801					
COLOR / MODE	AUTO	8	16	64	GRAY
M1	V.S.P	L	L	H	–
M2	L	H	L	L	–
M3	L	L	L	L	H

CN-M			
M6	H.P		
	POSI	NEGA	
	4.9V	0V	
M7	V.P		
	POSI	NEGA	
	4.9V	0V	
M8	SEPA	COMP	SYNC.G
	4.9V	4.9V	0V
M9	SEPA	COMP	SYNC.G
	4.3V	0V	0V

NOTES

1. RESISTOR VALUES ARE IN Ω (OHM) K = 1,000Ω M = 1,000,000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACTER SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS CONTROLS ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. AND VIDEO. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE 22KHz SEPARATE SYNC. TTL LEVEL POSITIVE
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL
9. (i) :15.5KHz $\leqq$ FH < 21KHz
   (ii) :21KHz $\leqq$ FH < 23KHz
   (iii) :23KHz $\leqq$ FH < 27.5KHz
   (iv) :27.5KHz $\leqq$ FH < 31KHz
   (v) :31KHz $\leqq$ FH < 33KHz
   (vi) :33KHz $\leqq$ FH $\leqq$ 38KHz
10. (i) :Fv < 75Hz
    (ii) :Fv $\geqq$ 75Hz

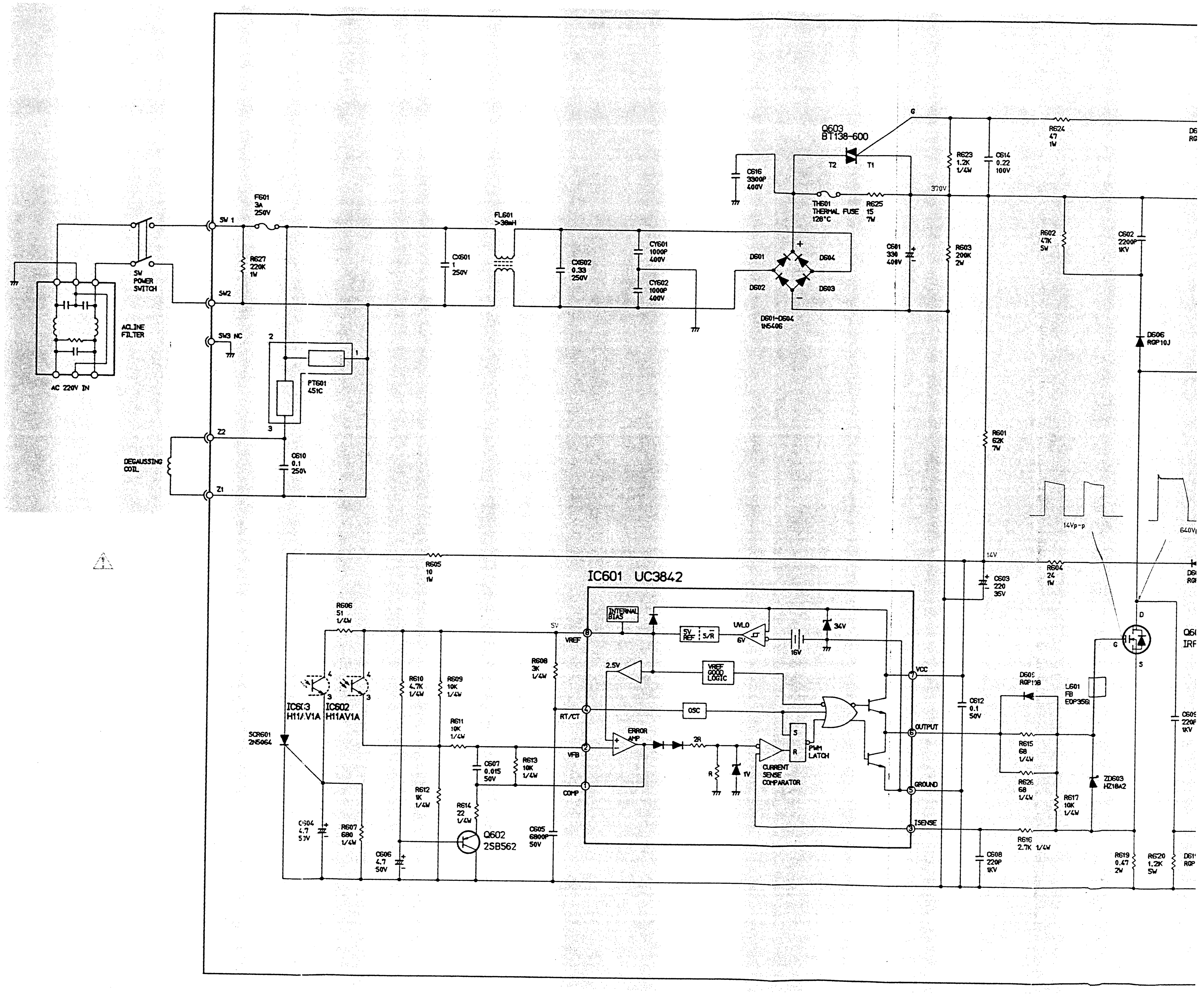
WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

CONTROL (S) MARKED ✱ IS PERMANENTLY FROZEN. DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

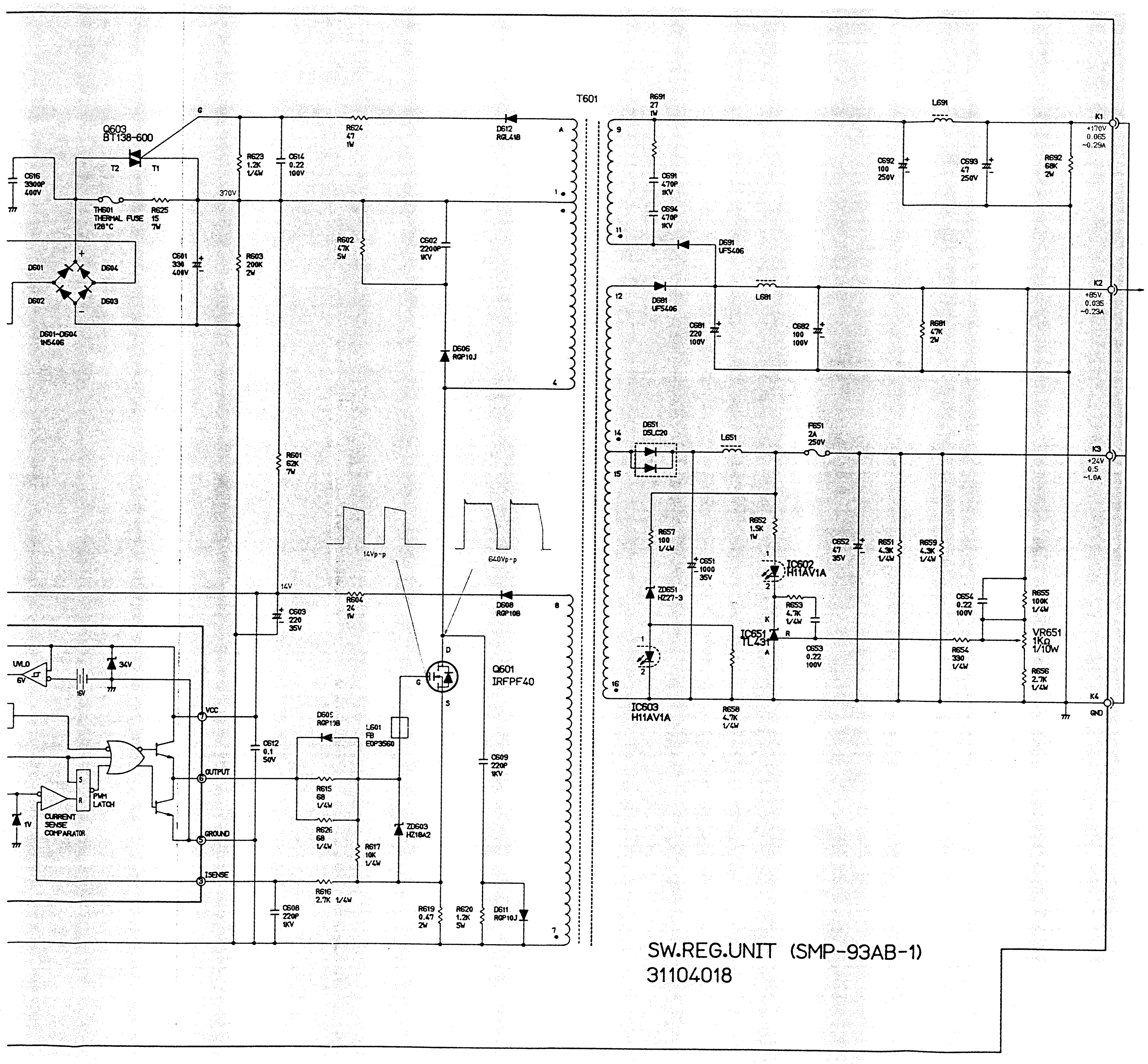
MODEL JC-1404HMED-1

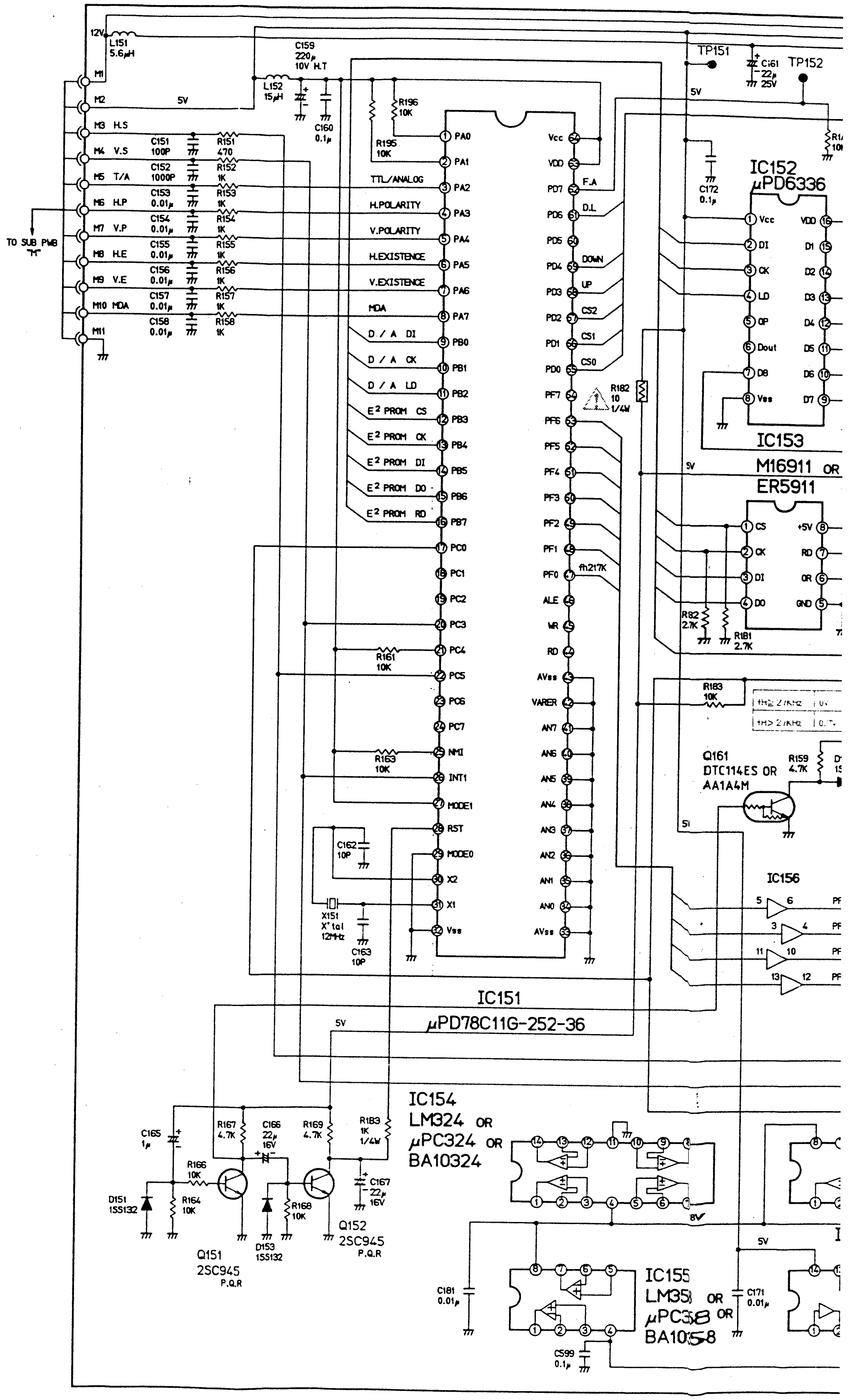
SCHEMATIC DIAGRAM 1


AC 220V IN
ACLINE FILTER
SW POWER SWITCH
SW 1
SW2
SW3 NC
Z2
Z1
DEGAUSSING COIL
F601 3A 250V
R627 220K 1W
PT601 451C
1
2
3
C610 0.1 250V
CX601 1 250V
FL601 >30mH
CX602 0.33 250V
CY601 1000P 400V
CY602 1000P 400V
D601
D602
D603
D604
D601~D604 1N5406
+
-
Q603 BT138-600
T2
T1
G
C616 3300P 400V
TH601 THERMAL FUSE 128°C
R625 15 7W
C601 330 400V
370V
R623 1.2K 1/4W
C614 0.22 100V
R603 200K 2W
R624 47 1W
D6
RG
R602 47K 5W
C602 2200P 1KV
D606 RGP10J
R601 62K 7W
14Vp-p
640V
14V
R604 24 1W
C603 220 35V
R605 10 1W
IC601 UC3842
R606 51 1/4W
IC603 H11AV1A
IC602 H11AV1A
4
3
SCR601 2N5064
C604 4.7 50V
R607 680 1/4W
R610 4.7K 1/4W
R609 10K 1/4W
R611 10K 1/4W
R612 1K 1/4W
R614 22 1/4W
Q602 2SB562
C606 4.7 50V
C607 0.015 50V
R613 10K 1/4W
R608 3K 1/4W
C605 6800P 50V
5V
VREF
RT/CT
VFB
COMP
8
4
2
1
INTERNAL BIAS
5V REF
S/R
UVLO
6V
16V
34V
2.5V
VREF GOOD LOGIC
OSC
ERROR AMP
2R
R
1V
CURRENT SENSE COMPARATOR
S
R
PWM LATCH
VCC
OUTPUT
GROUND
ISENSE
7
6
5
3
C612 0.1 50V
C608 220P 1KV
D609 RGP10B
R615 68 1/4W
R626 68 1/4W
R617 10K 1/4W
R616 2.7K 1/4W
L601 FB EOP3561
ZD603 HZ18A2
D
G
S
Q60
IRF
C60
220
1KV
R619 0.47 2W
R620 1.2K 5W
D61
RGP

78163651

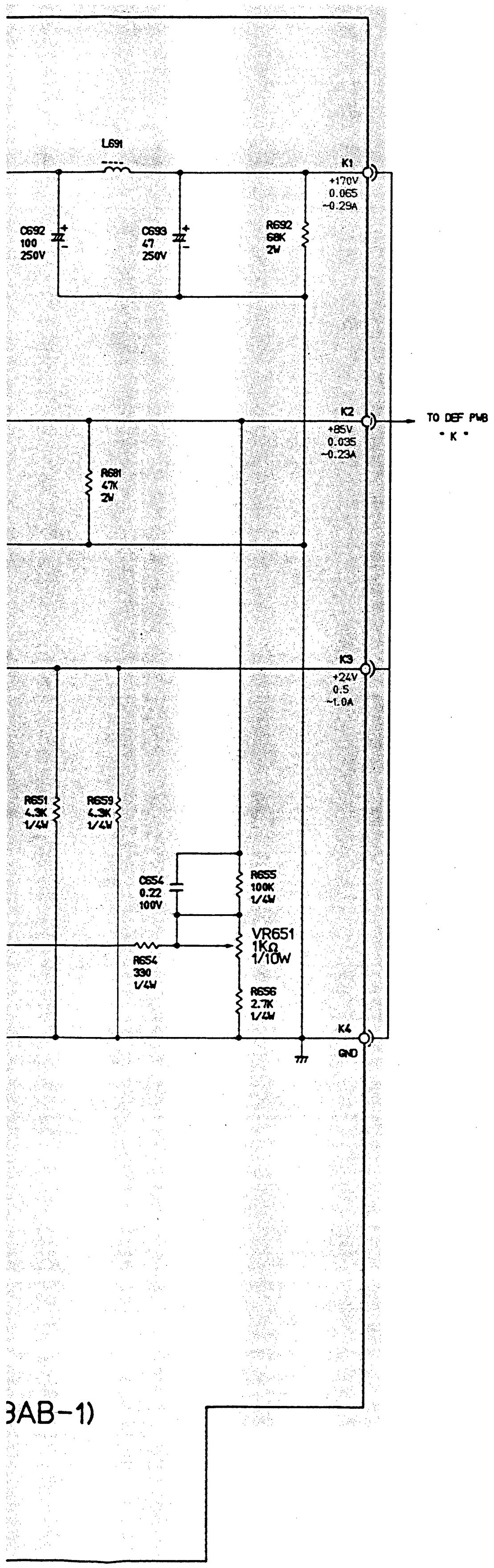
MODEL JC-1404HMED-1
SCHEMATIC DIAGRAM 2

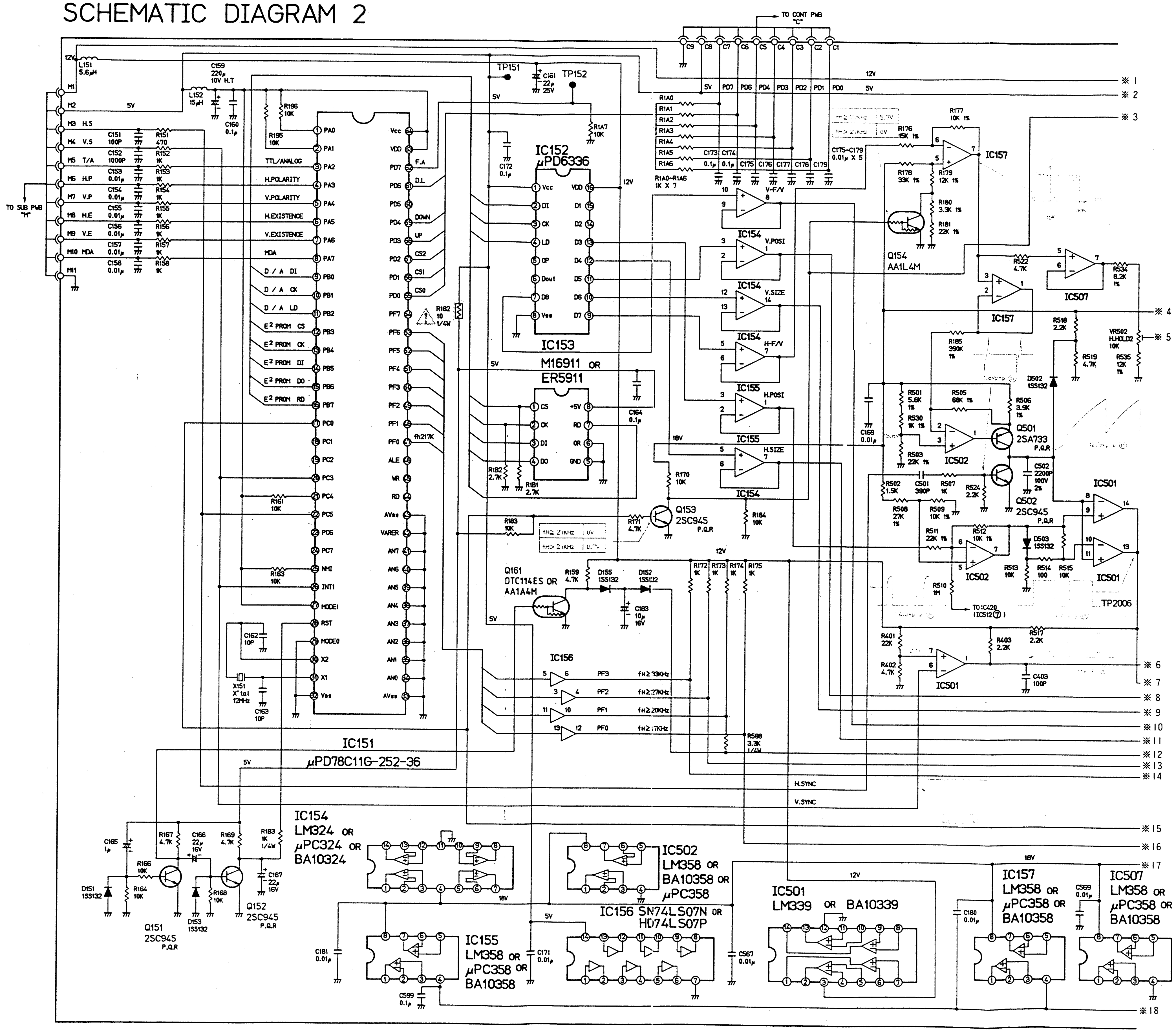

SW.REG.UNIT (SMP-93AB-1)
31104018
T601
Q603 BT138-600
C616 3300P 400V
TH601 THERMAL FUSE 126°C
R625 15 7W
D601 D602 D603 D604
D601-D604 1N5406
C601 330 400V
370V
R623 1.2K 1/4W
C614 0.22 100V
R603 200K 2W
R624 47 1W
D612 RGL41B
R602 47K 5W
C602 2200P 1KV
D606 RGP10J
R601 82K 7W
14V
C603 220 35V
R604 24 1W
D608 RGP10B
14Vp-p
640Vp-p
Q601 IRFPF40
UVLO 6V
34V
16V
PWM LATCH
CURRENT SENSE COMPARATOR
1V
VCC
OUTPUT
GROUND
ISENSE
C612 0.1 50V
D605 RGP10B
L601 FB EOP3560
R615 68 1/4W
R626 68 1/4W
R617 10K 1/4W
ZD603 HZ18A2
C609 220P 1KV
C608 220P 1KV
R616 2.7K 1/4W
R619 0.47 2W
R620 1.2K 5W
D611 RGP10J
R691 27 1W
C691 470P 1KV
C694 470P 1KV
D691 UF5406
L691
C692 100 250V
C693 47 250V
R692 68K 2W
K1 +170V 0.065 ~0.29A
D681 UF5406
L681
C681 220 100V
C682 100 100V
R681 47K 2W
K2 +85V 0.035 ~0.23A
TO DEF PWB "K"
D651 DSLC20
L651
F651 2A 250V
K3 +24V 0.5 ~1.0A
R657 100 1/4W
C651 1000 35V
ZD651 HZ27-3
R652 1.5K 1W
IC602 H11AV1A
C652 47 35V
R651 4.3K 1/4W
R659 4.3K 1/4W
R653 4.7K 1/4W
C654 0.22 100V
R655 100K 1/4W
IC651 TL431
C653 0.22 100V
R654 330 1/4W
VR651 1KΩ 1/10W
R656 2.7K 1/4W
IC603 H11AV1A
R658 4.7K 1/4W
K4 GND

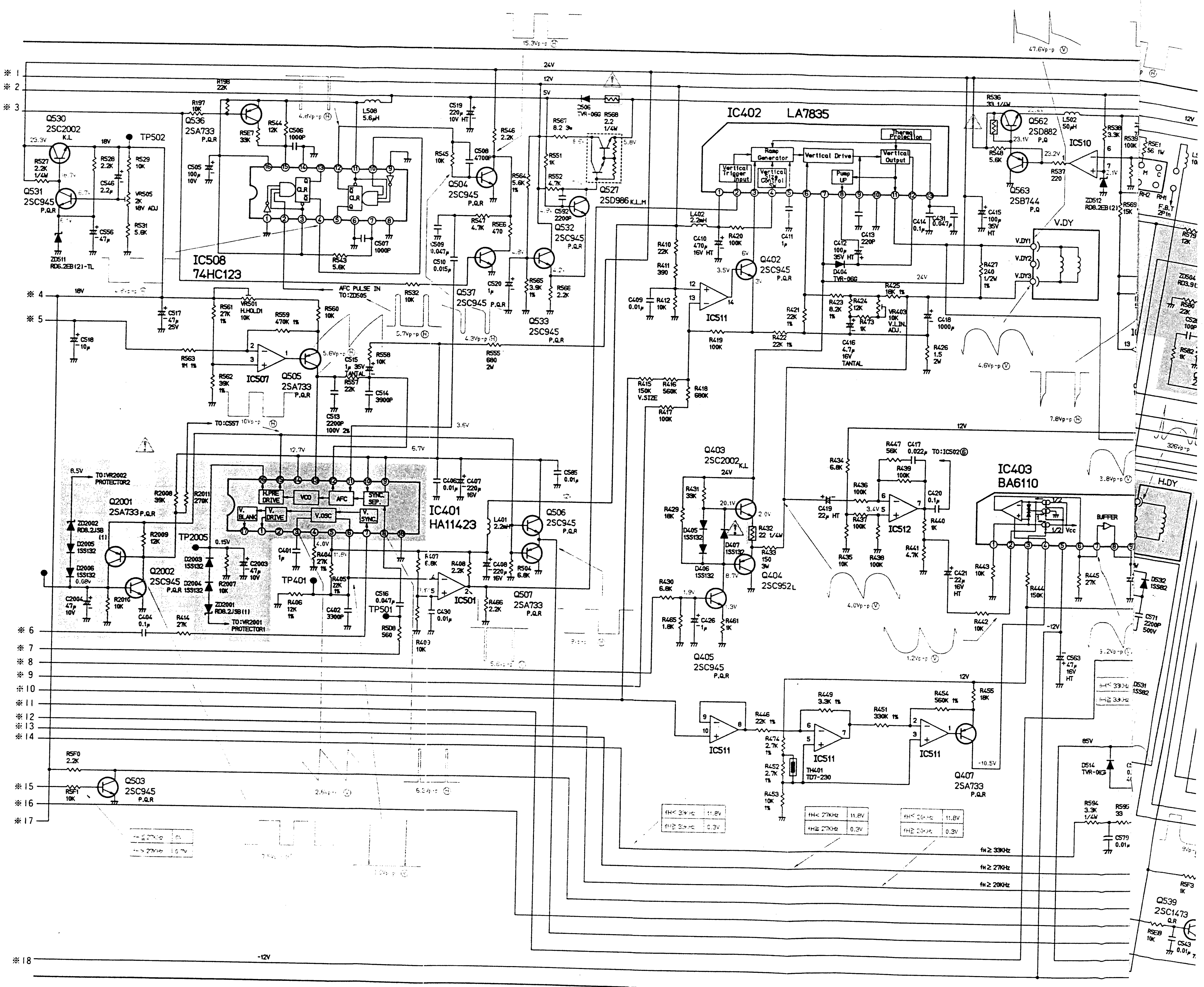

12V
L151 5.6μH
C159 220μ 10V H.T
L152 15μH
C160 0.1μ
R196 10K
R195 10K
TP151
C161 22μ 25V
TP152
M1 M2 M3 H.S M4 V.S M5 T/A M6 H.P M7 V.P M8 H.E M9 V.E M10 MDA M11
5V
TO SUB PWB "M"
C151 100P
C152 1000P
C153 0.01μ
C154 0.01μ
C155 0.01μ
C156 0.01μ
C157 0.01μ
C158 0.01μ
R151 470
R152 1K
R153 1K
R154 1K
R155 1K
R156 1K
R157 1K
R158 1K
TTL/ANALOG
H.POLARITY
V.POLARITY
H.EXISTENCE
V.EXISTENCE
MDA
D/A DI
D/A CK
D/A LD
E² PROM CS
E² PROM CK
E² PROM DI
E² PROM DO
E² PROM RD
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
NMI INT1 MODE1 RST MODE0 X2 X1 Vss
Vcc VDD PD7 PD6 PD5 PD4 PD3 PD2 PD1 PD0
PF7 PF6 PF5 PF4 PF3 PF2 PF1 PF0
ALE WR RD AVss VAREF AN7 AN6 AN5 AN4 AN3 AN2 AN1 AN0 AVss
F.A D.L DOWN UP CS2 CS1 CS0
R182 10 1/4W
R161 10K
R163 10K
C162 10P
X151 X'tal 12MHz
C163 10P
IC151 μPD78C11G-252-36
C172 0.1μ
IC152 μPD6336
Vcc VDD DI CK LD OP Dout D8 Vss D1 D2 D3 D4 D5 D6 D7
IC153 M16911 OR ER5911
CS CK DI DO +5V RD OR GND
R82 2.7K
R181 2.7K
R183 10K
Q161 DTC114ES OR AA1A4M
R159 4.7K
IC156
C165 1μ
R167 4.7K
C166 22μ 16V
R169 4.7K
R183 1K 1/4W
R166 10K
C167 22μ 16V
D151 1SS132
R164 10K
R168 10K
D153 1SS132
Q151 2SC945 P.Q.R
Q152 2SC945 P.Q.R
IC154 LM324 OR μPC324 OR BA10324
8V
IC155 LM358 OR μPC358 OR BA10358
C181 0.01μ
C171 0.01μ
C599 0.1μ

MODEL JC-1404HMED-1
SCHEMATIC DIAGRAM 2

RUN NO.1


L691
C692 100 250V
C693 47 250V
R692 68K 2W
K1 +170V 0.065 ~0.29A
K2 +85V 0.035 ~0.23A
TO DEF PWB "K"
R681 47K 2W
K3 +24V 0.5 ~1.0A
R651 4.3K 1/4W
R659 4.3K 1/4W
C654 0.22 100V
R655 100K 1/4W
VR651 1KΩ 1/10W
R654 330 1/4W
R656 2.7K 1/4W
K4 GND
3AB-1)


TO SUB PWB "M"
12V
L151 5.6μH
M1
M2 5V
M3 H.S
M4 V.S
M5 T/A
M6 H.P
M7 V.P
M8 H.E
M9 V.E
M10 MDA
M11
C151 100P
C152 1000P
C153 0.01μ
C154 0.01μ
C155 0.01μ
C156 0.01μ
C157 0.01μ
C158 0.01μ
R151 470
R152 1K
R153 1K
R154 1K
R155 1K
R156 1K
R157 1K
R158 1K
C159 220μ 10V H.T
L152 15μH
C160 0.1μ
R195 10K
R196 10K
PA0
PA1
TTL/ANALOG
PA2
H.POLARITY
PA3
V.POLARITY
PA4
H.EXISTENCE
PA5
V.EXISTENCE
PA6
MDA
PA7
D / A DI
PB0
D / A CK
PB1
D / A LD
PB2
E² PROM CS
PB3
E² PROM CK
PB4
E² PROM DI
PB5
E² PROM DO
PB6
E² PROM RD
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
NMI
INT1
MODE1
RST
MODE0
X2
X1
Vss
R161 10K
R163 10K
C162 10P
X151 X'tal 12MHz
C163 10P
Vcc
VDD
PD7 F.A
PD6 D.L
PD5
PD4 DOWN
PD3 UP
PD2 CS2
PD1 CS1
PD0 CS0
PF7
PF6
PF5
PF4
PF3
PF2
PF1
PF0 fh217K
ALE
WR
RD
AVss
VAREF
AN7
AN6
AN5
AN4
AN3
AN2
AN1
AN0
AVss
R182 10 1/4W
IC151
μPD78C11G-252-36
5V
TP151
TP152
C161 22μ 25V
C172 0.1μ
R1A7 10K
IC152
μPD6336
Vcc
DI
CK
LD
OP
Dout
D8
Vss
VDD
D1
D2
D3
D4
D5
D6
D7
12V
IC153
M16911 OR
ER5911
CS
CK
DI
DO
+5V
RD
OR
GND
C164 0.1μ
R1B2 2.7K
R1B1 2.7K
TO CONT PWB "C"
C9
C8
C7
C6
C5
C4
C3
C2
C1
5V PD7 PD6 PD4 PD3 PD2 PD1 PD0 5V
R1A0
R1A1
R1A2
R1A3
R1A4
R1A5
R1A6
R1A0~R1A6 1K X 7
C173 0.1μ
C174 0.1μ
C175
C176
C177
C178
C179
C175~C179 0.01μ X 5
IC154 V-F/V
IC154 V.POSI
IC154 V.SIZE
IC154 H-F/V
IC155 H.POSI
IC155 H.SIZE
IC154
18V
R170 10K
Q153 2SC945 P.Q.R
R171 4.7K
R183 10K
R184 10K
fH≧27KHz 0V
fH>27KHz
R176 15K 1%
R177 10K 1%
R178 33K 1%
R179 12K 1%
R180 3.3K 1%
R181 22K 1%
IC157
Q154 AA1L4M
R522 4.7K
R534 8.2K 1%
IC507
R518 2.2K
R519 4.7K
VR502 H.HOLD2 10K
R535 12K 1%
R185 390K 1%
D502 1SS132
C169 0.01μ
R501 5.6K 1%
R530 1K 1%
R503 22K 1%
R505 68K 1%
R506 3.9K 1%
Q501 2SA733 P.Q.R
IC502
C502 2200P 100V 2%
Q502 2SC945 P.Q.R
R502 1.5K
C501 390P
R507 1K
R524 2.2K
R508 27K 1%
R509 10K 1%
R511 22K 1%
R512 10K 1%
D503 1SS132
R513 10K
R514 100
R515 10K
IC501
R510 1M
TO:C420 (IC512⑦)
TP2006
R401 22K
R402 4.7K
R403 2.2K
R517 2.2K
C403 100P
Q161 DTC114ES OR AA1A4M
R159 4.7K
D155 1SS132
D152 1SS132
C183 10μ 16V
R172 1K
R173 1K
R174 1K
R175 1K
IC156
PF3 fH≥33KHz
PF2 fH≥27KHz
PF1 fH≥20KHz
PF0 fH≥17KHz
R598 3.3K 1/4W
H.SYNC
V.SYNC
※1
※2
※3
※4
※5
※6
※7
※8
※9
※10
※11
※12
※13
※14
※15
※16
※17
※18
C165 1μ
R166 10K
R164 10K
D151 1SS132
R167 4.7K
C166 22μ 16V
R169 4.7K
R168 10K
D153 1SS132
Q151 2SC945 P.Q.R
Q152 2SC945 P.Q.R
R183 1K 1/4W
C167 22μ 16V
IC154 LM324 OR μPC324 OR BA10324
IC502 LM358 OR BA10358 OR μPC358
IC155 LM358 OR μPC358 OR BA10358
IC156 SN74LS07N OR HD74LS07P
IC501 LM339 OR BA10339
IC157 LM358 OR μPC358 OR BA10358
IC507 LM358 OR μPC358 OR BA10358
C181 0.01μ
C599 0.1μ
C171 0.01μ
C567 0.01μ
C180 0.01μ
C569 0.01μ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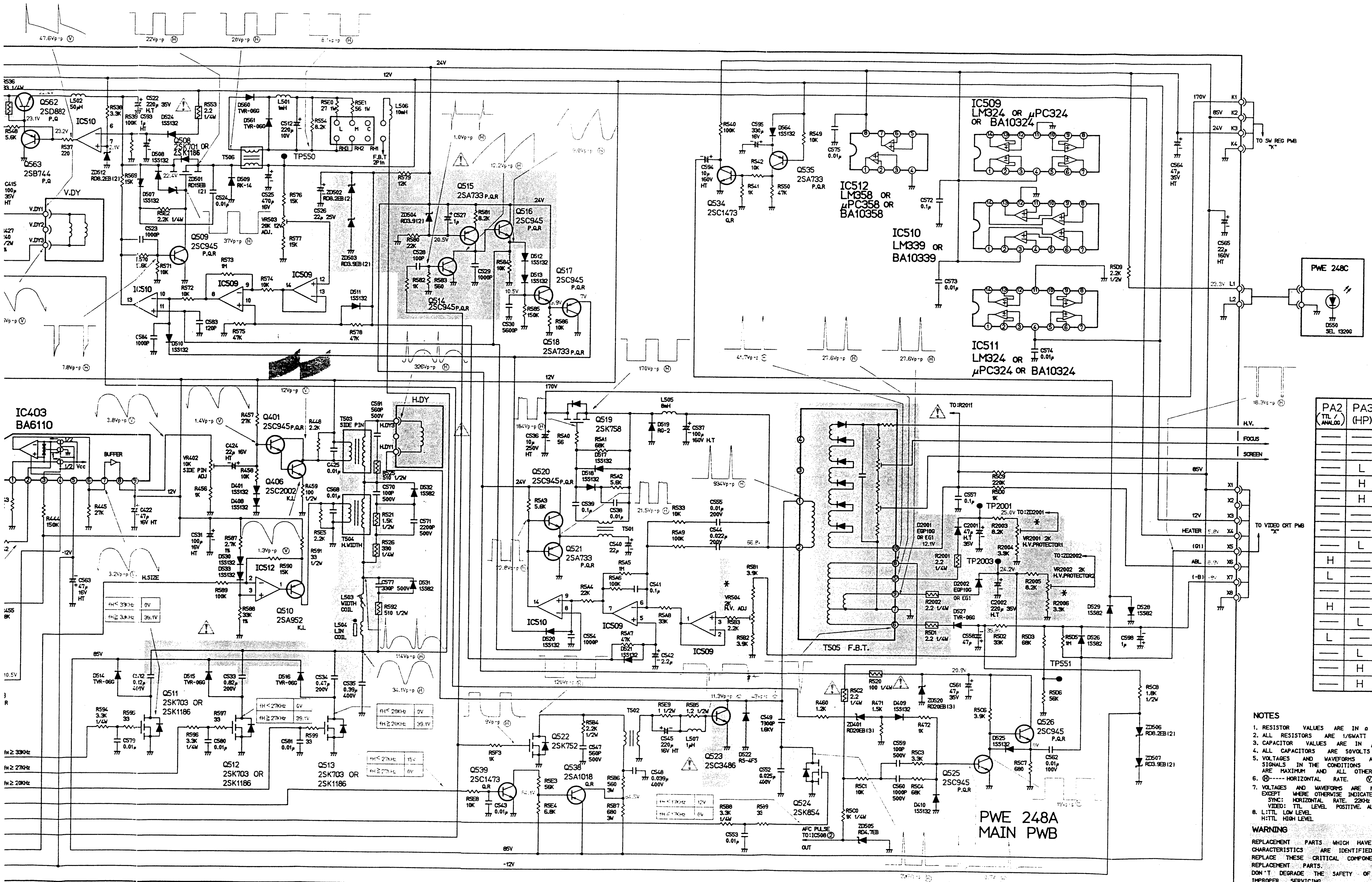
※16
※17
※18
24V
12V
5V
18V
-12V
85V
Q530
2SC2002 K.L
Q531
2SC945 P.Q.R
TP502
R527 2.2K 1/4W
R528 2.2K
R529 10K
C546 2.2μ
VR505 2K 18V ADJ
R531 5.6K
C556 47μ
ZD511 RD6.2EB(2)-TL
R198 22K
R197 10K
Q536 2SA733 P.Q.R
R544 12K
R567 33K
C506 1000P
L508 5.6μH
C505 100μ 10V
IC508 74HC123
R543 5.6K
C507 1000P
CLR
AFC PULSE IN TO:ZD505
C519 220μ 10V HT
R545 10K
C508 4700P
Q504 2SC945 P.Q.R
R546 2.2K
R547 4.7K
R566 470
C509 0.047μ
C510 0.015μ
Q537 2SC945 P.Q.R
C520 1μ
R565 3.9K 1%
R566 2.2K
Q533 2SC945 P.Q.R
D506 TVR-06G
R568 2.2 1/4W
R567 8.2 3W
R551 1K
R552 4.7K
C592 2200P
Q532 2SC945 P.Q.R
Q527 2SD986 K.L.M
R564 5.6K 1%
R555 680 2W
R532 10K
C517 47μ 25V
C518 10μ
R561 27K 1%
VR501 H.HOLD1 10K
R559 470K 1%
R560 10K
R563 1M 1%
IC507
Q505 2SA733 P.Q.R
R562 39K 1%
C515 1μ 35V TANTAL
R558 10K
R557 22K
C514 3900P
C513 2200P 100V 2%
TO:C557
6.5V TO:VR2002 PROTECTOR2
Q2001 2SA733 P.Q.R
R2008 39K
R2011 270K
ZD2002 RD8.2JSB (1)
D2005 1SS132
D2006 1SS132
R2009 12K
TP2005
D2003 1SS132
D2004 1SS132
C2003 47μ 10V
R2007 10K
ZD2001 RD8.2JSB(1)
TO:VR2001 PROTECTOR1
Q2002 2SC945 P.Q.R
C2004 47μ 10V
R2010 10K
C404 0.1μ
R414 27K
H.PRE DRIVE
VCO
AFC
SYNC SEP.
V. BLANK
V. DRIVE
V.OSC
V. SYNC
IC401 HA11423
C401 1μ
R404 27K 1%
R405 22K 1%
TP401
R406 12K 1%
C402 3300P
C516 0.047μ
TP501
R508 560
C406 0.01μ
C407 220μ 16V
C585 0.01μ
R407 6.8K
R403 10K
C430 0.01μ
IC501
R408 2.2K
L401 2.2mH
C408 220μ 16V
R466 2.2K
Q506 2SC945 P.Q.R
R504 6.8K
Q507 2SA733 P.Q.R
R5F0 2.2K
R5F1 10K
Q503 2SC945 P.Q.R
IC402 LA7835
Thermal Protection
Ramp Generator
Vertical Drive
Vertical Output
Vertical Trigger Input
Vertical Size Control
Pump UP
L402 2.2mH
C410 470μ 16V HT
R420 100K
C411 1μ
R410 22K
R411 390
Q402 2SC945 P.Q.R
C409 0.01μ
R412 10K
IC511
C412 100μ 35V HT
C413 220P
D404 TVR-06G
C414 0.1μ
C431 0.047μ
C415 100μ 35V HT
R421 22K 1%
R423 8.2K 1%
R424 12K
R473 1K
VR403 10K V.LIN. ADJ.
R425 18K 1%
R427 240 1/2W 1%
C418 1000μ
R426 1.5 2W
R419 100K
R422 22K 1%
C416 4.7μ 16V TANTAL
R415 150K V.SIZE
R416 560K
R418 680K
R417 100K
R536 33 1/4W
Q562 2SD882 P.Q
L502 50μH
R538 3.3K
R539 100K
R548 5.6K
IC510
R537 220
Q563 2SB744 P.Q
ZD512 RD6.2EB(2)
R569 15K
R5E1 56 1W
V.DY
V.DY1
V.DY2
V.DY3
F.B.T
Q403 2SC2002 K.L
R431 33K
R429 18K
D405 1SS132
R432 22 1/4W
D407 1SS132
R433 150 3W
D406 1SS132
Q404 2SC952L
R430 6.8K
R465 1.8K
C426 1μ
R461 1K
Q405 2SC945 P.Q.R
R434 6.8K
R447 56K
C417 0.022μ
TO:IC502⑥
R439 100K
R436 100K
C420 0.1μ
C419 22μ HT
R437 100K
IC512
R440 1K
R441 4.7K
R435 10K
R438 100K
C421 22μ 16V HT
IC403 BA6110
1/2 Vcc
BUFFER
R443 10K
R445 27K
R444 150K
R442 10K
D532 1SS82
C571 2200P 500V
C563 47μ 16V HT
D531 1SS82
H.DY
R446 22K 1%
R449 3.3K 1%
R451 330K 1%
R454 560K 1%
R455 18K
R474 2.7K 1%
R452 2.7K 1%
TH401 TD7-230
R453 10K 1%
Q407 2SA733 P.Q.R
D514 TVR-06G
R594 3.3K 1/4W
R595 33
C579 0.01μ
fH≥33KHz
fH≥27KHz
fH≥20KHz
fH<33KHz 11.8V
fH≥33KHz 0.3V
fH<27KHz 11.8V
fH≥27KHz 0.3V
fH<20KHz 11.8V
fH≥20KHz 0.3V
fH≤27KHz 0V
fH>27KHz 15.7V
RSF3 1K
Q539 2SC1473 Q.R
RSE8 10K
C543 0.01μ
15.3Vp-p Ⓗ
47.6Vp-p Ⓥ
4.6Vp-p Ⓥ
7.8Vp-p Ⓗ
5.7Vp-p Ⓗ
4.3Vp-p Ⓗ
5.6Vp-p
10Vp-p Ⓗ
4.0Vp-p Ⓥ
1.2Vp-p Ⓥ
3.8Vp-p Ⓥ
326Vp-p
12.7V
6.7V
3.6V
20.1V
2.0V
8.7V
1.9V
3.4V
-10.5V
23.1V
23.2V
0.15V
0.68V
4.0V
11.6V


PWE 248A
MAIN PWB
IC403 BA6110
IC509 LM324 OR μPC324 OR BA10324
IC512 LM358 OR μPC358 OR BA10358
IC510 LM339 OR BA10339
IC511 LM324 OR μPC324 OR BA10324
IC510
IC509
IC512
Q562 2SD882 P.Q
Q563 2SB744 P.Q
Q508 2SK701 OR 2SK1186
Q509 2SC945 P.Q.R
Q515 2SA733 P.Q.R
Q516 2SC945 P.Q.R
Q514 2SC945 P.Q.R
Q517 2SC945 P.Q.R
Q518 2SA733 P.Q.R
Q534 2SC1473 Q.R
Q535 2SA733 P.Q.R
Q401 2SC945 P.Q.R
Q406 2SC2002 K.L
Q510 2SA952 K.L
Q519 2SK758
Q520 2SC945 P.Q.R
Q521 2SA733 P.Q.R
Q511 2SK703 OR 2SK1186
Q512 2SK703 OR 2SK1186
Q513 2SK703 OR 2SK1186
Q522 2SK752
Q523 2SC3486
Q524 2SK854
Q525 2SC945 P.Q.R
Q526 2SC945 P.Q.R
Q538 2SA1018 Q.R
Q539 2SC1473 Q.R
T503 SIDE PIN
T504 H.WIDTH
T505 F.B.T.
T506
T501
T502
L503 WIDTH COIL
L504 LIN COIL
H.DY
V.DY
TP550
TP551
TP2001
TP2003
F.B.T 2Pin
VR2001 2K H.V.PROTECTOR1
VR2002 2K H.V.PROTECTOR2
VR504 2K H.V. ADJ
VR503 20K ADJ.
VR402 10K SIDE PIN ADJ
H.SIZE
BUFFER
H.V.
FOCUS
SCREEN
HEATER
ABL
TO SW REG PWB "K"
TO VIDEO CRT PWB "X"
PWE 248C
D550 SEL 1320G
AFC PULSE TO:IC508②
OUT
TO:R2011
170V
24V
12V
85V
-12V
47.6Vp-p Ⓥ
22Vp-p Ⓗ
20Vp-p Ⓗ
326Vp-p Ⓗ
170Vp-p Ⓗ
934Vp-p Ⓗ
fH < 33KHz 0V
fH ≧ 33KHz 39.1V
fH < 27KHz 0V
fH ≧ 27KHz 39.1V
fH < 20KHz 0V
fH ≧ 20KHz 39.1V

PD0 (CS0)	PD1 (CS1)	PD (CS
L	H	H
H	L	L
H	L	H
H	H	L
H	H	H

PD3	PD4	
H	L	UP
L	H	DO
H	H	DIS

PD6	PD7	
L	L	USE
L	H	FA
H	L	DA
H	H	FA

PA2 (TTL / ANALOG)	PA3 (HP)	PA4 (VP)	PA5 (HE)	PA6 (VE)
—	—	—	—	—
—	—	—	—	—
—	L	H	—	—
—	H	L	—	—
—	H	H	—	—
—	—	—	—	—
—	—	—	L	L
—	L	L	H	H
H	—	—	—	—
L	—	—	—	—
—	—	—	—	—
H	—	—	—	—
—	L	L	—	—
L	—	—	—	—
—	L	H	H	H
—	H	L	H	H
—	H	H	H	H

NOTES

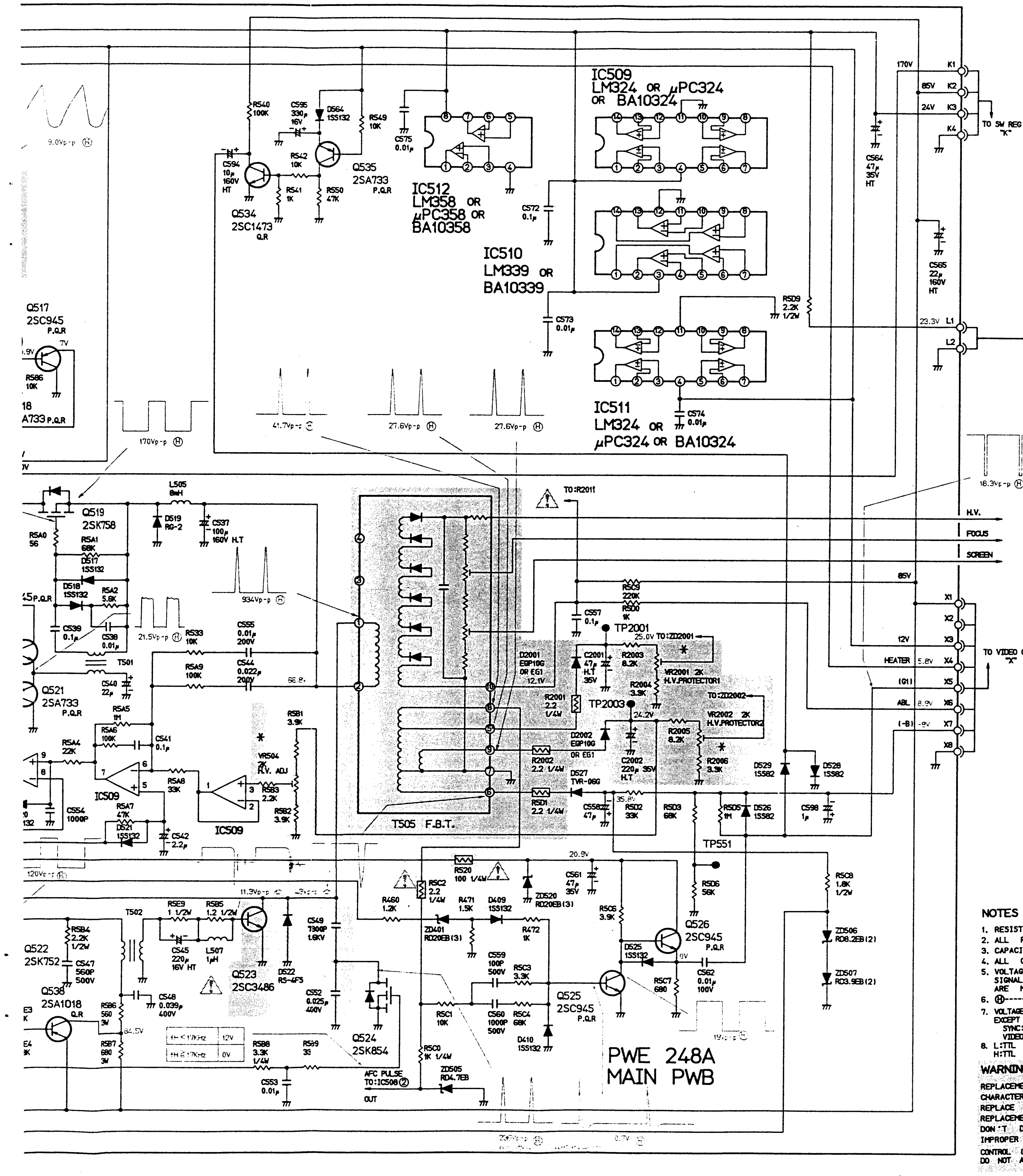
1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1.000.000
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDIC
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CH SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNES ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OP
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING S EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE. 22KHz SEPARATE SYNC. TTL LEVEL
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL

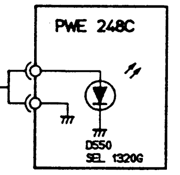
WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.
DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

CONTROL (S) MARKED * IS PERMANENTLY FROZEN.
DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

RUN NO.1


IC509 LM324 OR μPC324 OR BA10324
IC512 LM358 OR μPC358 OR BA10358
IC510 LM339 OR BA10339
IC511 LM324 OR μPC324 OR BA10324
Q534 2SC1473 Q.R
Q535 2SA733 P.Q.R
Q517 2SC945 P.Q.R
Q519 2SK758
Q521 2SA733 P.Q.R
Q522 2SK752
Q523 2SC3486
Q524 2SK854
Q525 2SC945 P.Q.R
Q526 2SC945 P.Q.R
Q536 2SA1018 Q.R
T505 F.B.T.
T501
T502
TP2001
TP2003
TP551
VR2001 2K H.V.PROTECTOR1
VR2002 2K H.V.PROTECTOR2
VR504 2K R.V. ADJ
H.V.
FOCUS
SCREEN
170V
85V
24V
TO SW REG PWB "X"
23.3V
TO VIDEO CRT PWB "X"
HEATER
(G1)
ABL
(-B)
TO:R2011
AFC PULSE TO:IC508②
OUT
170Vp-p Ⓗ
41.7Vp-p Ⓗ
27.6Vp-p Ⓗ
934Vp-p Ⓗ
21.5Vp-p Ⓗ
18.3Vp-p Ⓗ
120Vp-p Ⓗ
PWE 248A MAIN PWB


PWE 248C
D550 SEL 1320G

PD0 (CS0)	PD1 (CS1)	PD2 (CS2)	
L	H	H	H.POSI
H	L	L	H.SIZE
H	L	H	V.POSI
H	H	L	V.SIZE
H	H	H	DISABLE

PD3	PD4	
H	L	UP
L	H	DOWN
H	H	DISABLE

PD6	PD7	
L	L	USER CONTROL MODE
L	H	FACTORY ADJ. MODE
H	L	DATA LOAD
H	H	FACTORY DATA WRITING

PA2 (TTL / ANALOG)	PA3 (HP)	PA4 (VP)	PA5 (HE)	PA6 (VE)	PA7 (MODE)	FH	FV	
—	—	—	—	—	L	(i)	(i)	CGA
—	—	—	—	—	L	(ii)	(i)	EGA
—	L	H	—	—	L	(V)	(i)	VGA 350
—	H	L	—	—	L	(V)	(i)	VGA 400
—	H	H	—	—	L	(V)	(i)	VGA 480
—	—	—	—	—	L	(Vi)	(ii)	8514/A
—	—	—	L	L	L	(Vi)	(i)	MAC II
—	L	L	H	H	L	(Vi)	(i)	800✳600(1)P.P.
H	—	—	—	—	H	—	(i)	MDA
L	—	—	—	—	L	(iV)	(i)	PGC
—	—	—	—	—	L	(iii)	(i)	EGA(2)
H	—	—	—	—	L	(iV)	(i)	EGA(3)
—	L	L	—	—	L	(V)	(i)	ANALOG(1)P.P.
L	—	—	—	—	H	—	(i)	USER
—	L	H	H	H	L	(Vi)	(i)	800✳600(2)P.N.
—	H	L	H	H	L	(Vi)	(i)	800✳600(3)N.P.
—	H	H	H	H	L	(Vi)	(i)	800✳600(4)N.N.

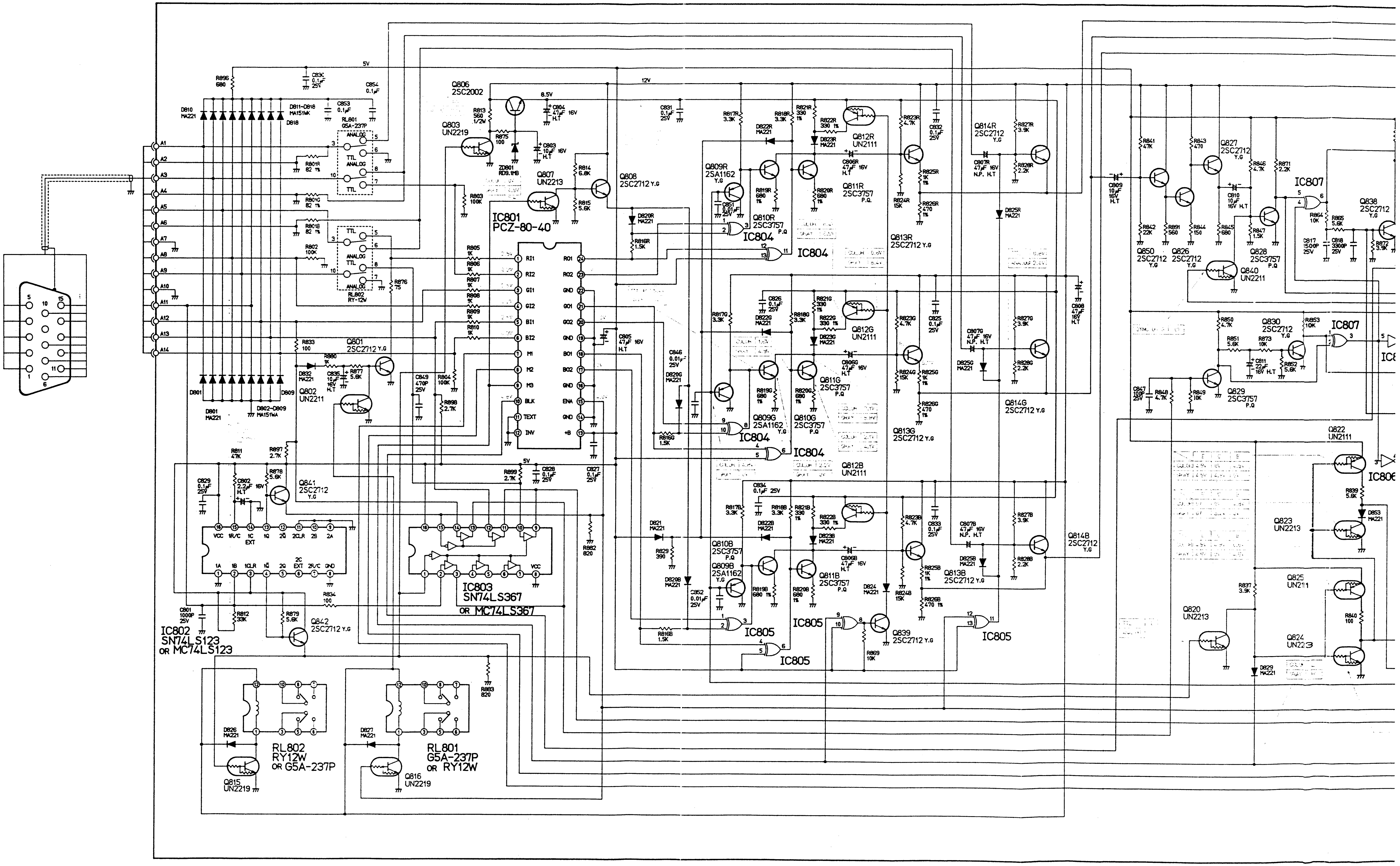
NOTES

1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1.000.000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACTER SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS CONTROLS ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. AND VIDEO. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE. 22KHz SEPARATE SYNC. TTL LEVEL POSITIVE
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL
9. (i) :15.5KHz ≦ FH < 21KHz
   (ii) :21KHz ≦ FH < 23KHz
   (iii) :23KHz ≦ FH < 27.5KHz
   (iV) :27.5KHz ≦ FH < 31KHz
   (V) :31KHz ≦ FH < 33KHz
   (Vi) :33KHz ≦ FH ≦ 38KHz
10. (i) :FV < 75Hz
    (ii) :FV ≧ 75Hz

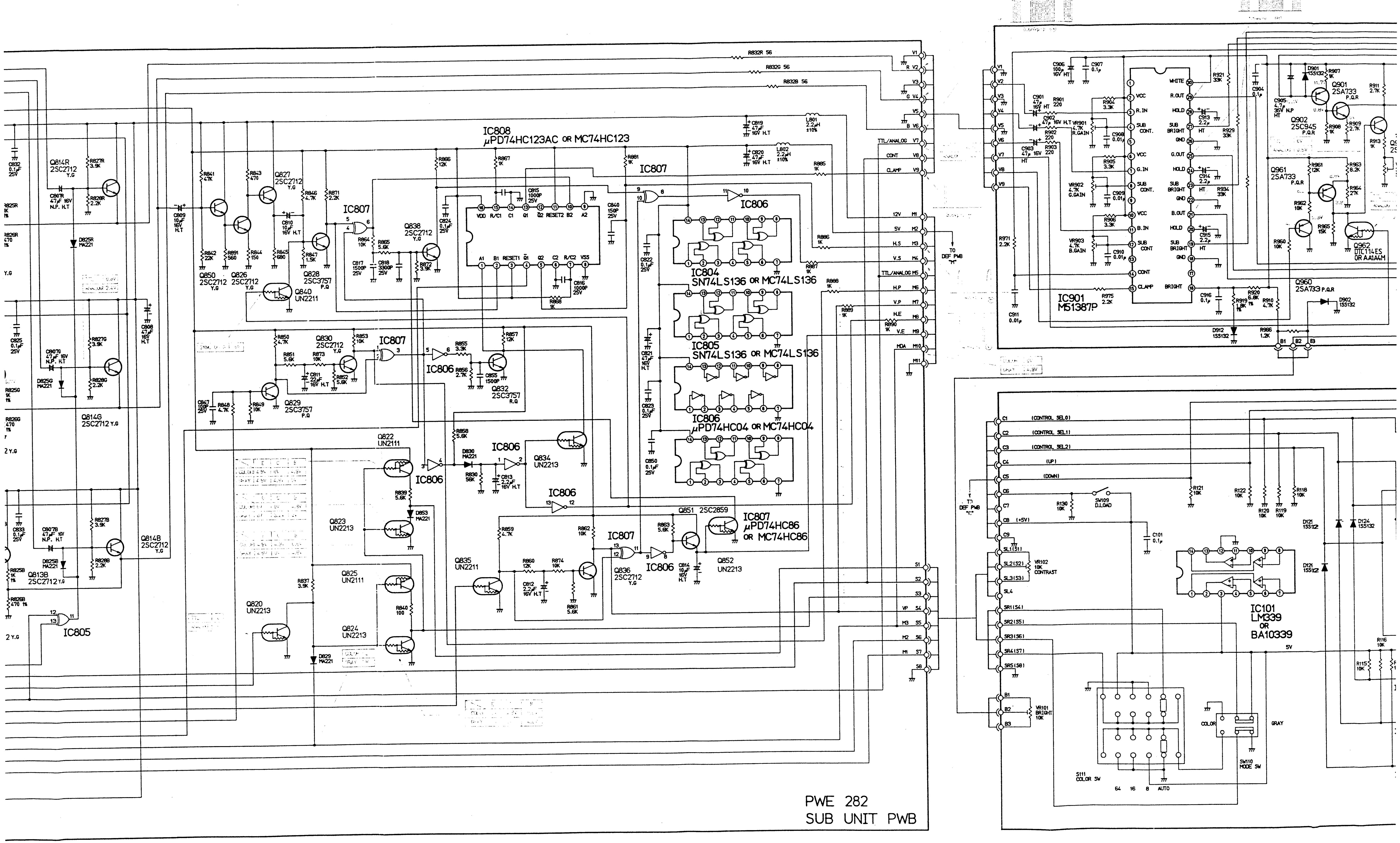
WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.
DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.
CONTROL (S) MARKED ✳ IS PERMANENTLY FROZEN.
DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

MODEL JC-1404HMED-1
SCHEMATIC DIAGRAM 3

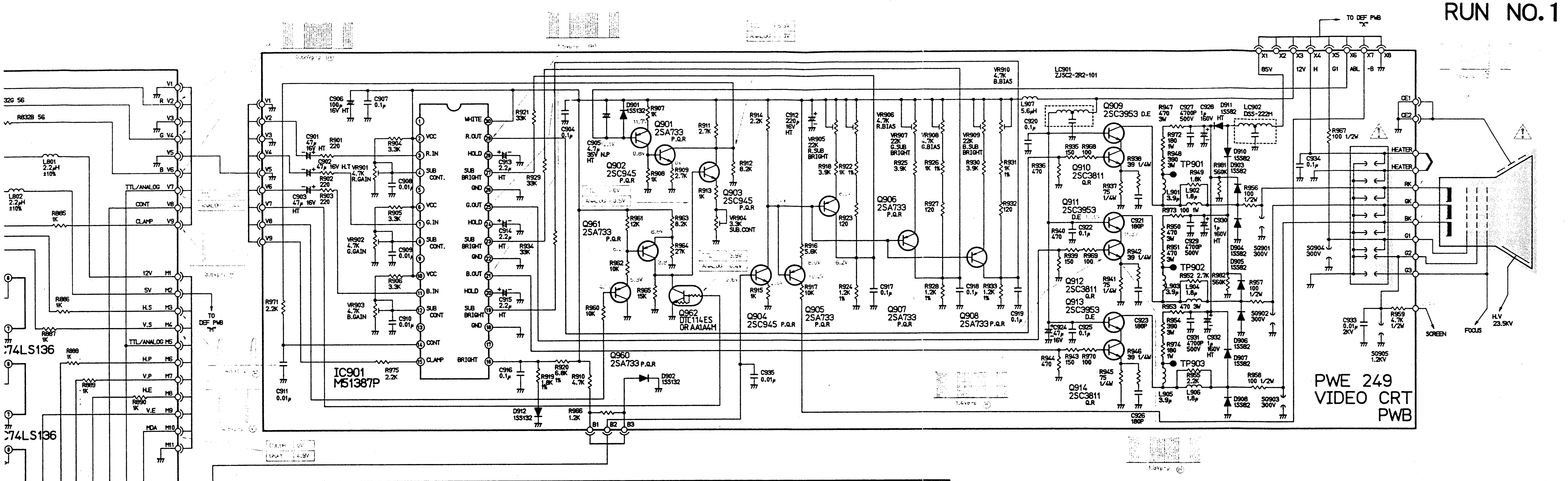


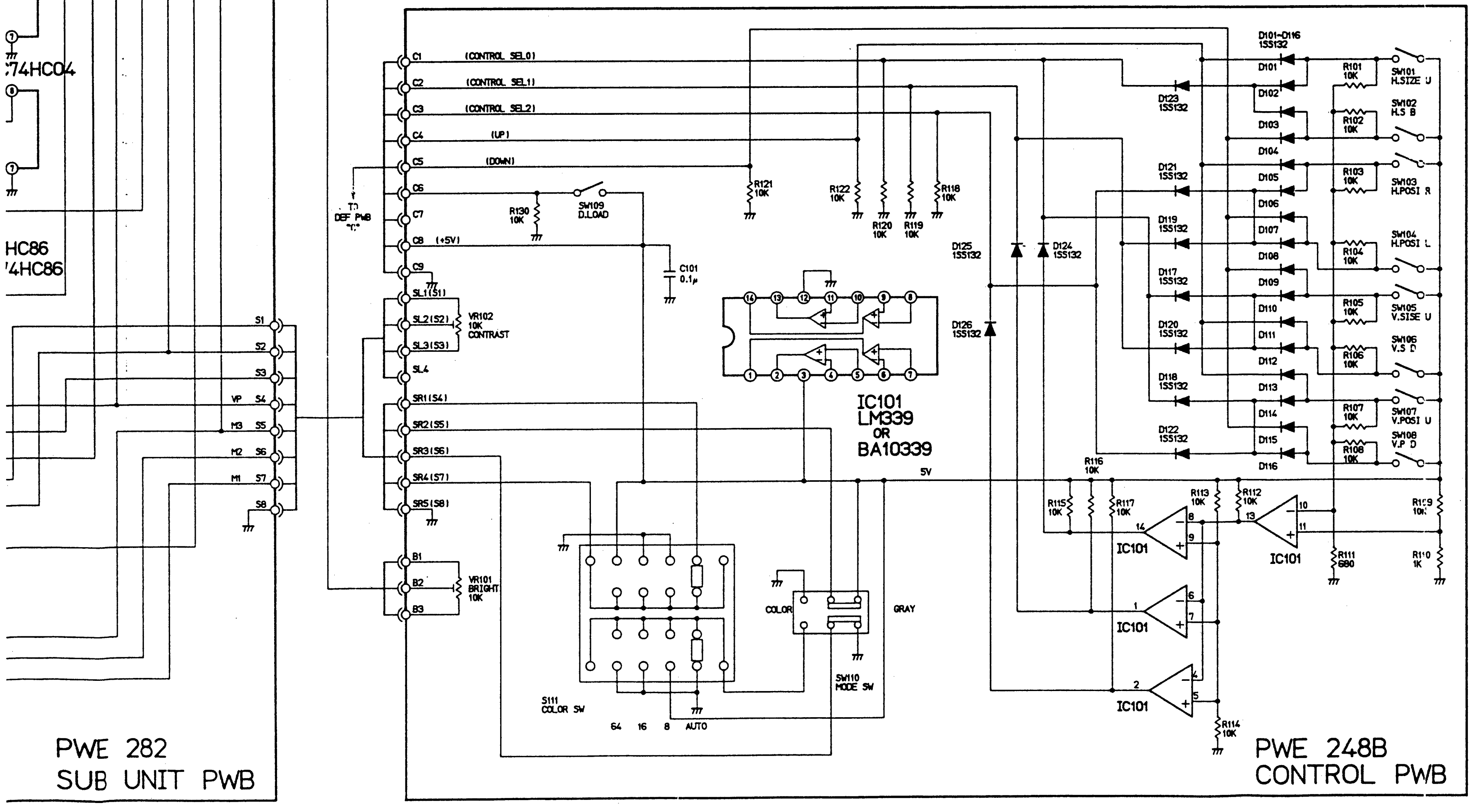
5V
12V
8.5V
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
D810 MA221
D811–D818 MA151WK
D818
D801 MA221
D802–D809 MA151WA
R896 680
C830 0.1µF 25V
C854 0.1µF
C853 0.1µF
RL801 G5A-237P
RL802 RY-12W
ANALOG
TTL
R801R 82 1%
R801G 82 1%
R801B 82 1%
R802 100K
R876 75
Q806 2SC2002
Q803 UN2219
R813 560 1/2W
R875 100
ZD801 RD9.1HB
C804 47µF 16V H.T
C803 10µF 16V H.T
R803 100K
Q807 UN2213
R814 6.8K
R815 5.6K
Q808 2SC2712 Y.G
IC801
PCZ-80-40
RI1
RI2
GI1
GI2
BI1
BI2
M1
M2
M3
BLK
TEXT
INV
RO1
RO2
GND
GO1
GO2
BO1
BO2
ENA
+B
R805 1K
R806 1K
R807 1K
R808 1K
R809 1K
R810 1K
C805 47µF 16V H.T
C831 0.1µF 25V
C846 0.01µF 25V
R833 100
Q801 2SC2712 Y.G
R880 1K
D832 MA221
C835 10µF 16V H.T
R877 5.6K
Q802 UN2211
C849 470P 25V
R804 100K
R898 2.7K
R897 2.7K
R811 47K
C802 2.2µF 16V H.T
R878 5.6K
Q841 2SC2712 Y.G
C829 0.1µF 25V
IC802
SN74LS123
OR MC74LS123
VCC
1R/C
1C EXT
1Q
2Q̄
2CLR
2B
2A
1A
1B
1CLR
1Q̄
2Q
2C EXT
2R/C
GND
C801 1000P 25V
R812 33K
R879 5.6K
Q842 2SC2712 Y.G
R834 100
R899 2.7K
C828 0.1µF 25V
C827 0.1µF 25V
IC803
SN74LS367
OR MC74LS367
VCC
R882 820
R883 820
RL802
RY12W
OR G5A-237P
RL801
G5A-237P
OR RY12W
D826 MA221
D827 MA221
Q815 UN2219
Q816 UN2219
R817R 3.3K
R818R 3.3K
R821R 330 1%
R822R 330 1%
D822R MA221
D823R MA221
Q812R UN2111
C806R 47µF 16V H.T
Q809R 2SA1162 Y.G
C851 0.01µF 25V
R819R 680 1%
R820R 680 1%
Q810R 2SC3757 P.Q
Q811R 2SC3757 P.Q
D820R MA221
R816R 1.5K
IC804
R823R 4.7K
C832 0.1µF 25V
R824R 15K
R825R 1K 1%
R826R 470 1%
Q813R 2SC2712 Y.G
Q814R 2SC2712 Y.G
C807R 47µF 16V N.P. H.T
R827R 3.9K
R828R 2.2K
D825R MA221
R817G 3.3K
C826 0.1µF 25V
R818G 3.3K
R821G 330 1%
R822G 330 1%
D822G MA221
D823G MA221
Q812G UN2111
C806G 47µF 16V H.T
D820G MA221
R819G 680 1%
R820G 680 1%
Q809G 2SA1162 Y.G
Q810G 2SC3757 P.Q
Q811G 2SC3757 P.Q
R816G 1.5K
R823G 4.7K
C825 0.1µF 25V
R824G 15K
R825G 1K 1%
R826G 470 1%
Q813G 2SC2712 Y.G
C807G 47µF 16V N.P. H.T
D825G MA221
R827G 3.9K
R828G 2.2K
Q814G 2SC2712 Y.G
C808 47µF 16V H.T
Q812B UN2111
C834 0.1µF 25V
R817B 3.3K
R818B 3.3K
R821B 330 1%
R822B 330 1%
D822B MA221
D823B MA221
C806B 47µF 16V H.T
D821 MA221
R829 390
Q810B 2SC3757 P.Q
Q809B 2SA1162 Y.G
R819B 680 1%
R820B 680 1%
Q811B 2SC3757 P.Q
D820B MA221
C852 0.01µF 25V
R816B 1.5K
IC805
D824 MA221
R823B 4.7K
C833 0.1µF 25V
R824B 15K
R825B 1K 1%
R826B 470 1%
Q813B 2SC2712 Y.G
C807B 47µF 16V N.P. H.T
D825B MA221
R827B 3.9K
R828B 2.2K
Q814B 2SC2712 Y.G
R869 10K
Q839 2SC2712 Y.G
C809 10µF 16V H.T
R841 47K
R843 470
Q827 2SC2712 Y.G
R846 4.7K
R871 2.2K
C810 10µF 16V H.T
R842 22K
R891 560
R844 150
R845 680
R847 1.5K
Q850 2SC2712 Y.G
Q826 2SC2712 Y.G
Q840 UN2211
Q828 2SC3757 P.Q
IC807
R864 10K
R865 5.6K
C817 1500P 25V
C818 3300P 25V
Q838 2SC2712 Y.G
R872 3.9K
R850 4.7K
R851 5.6K
R873 10K
Q830 2SC2712 Y.G
R853 10K
C811 22µF 16V H.T
R852 5.6K
C847 100P 25V
R848 4.7K
R849 10K
Q829 2SC3757 P.Q
Q822 UN2111
IC806
R839 5.6K
D853 MA221
Q823 UN2213
R837 3.9K
Q825 UN2111
R840 100
Q820 UN2213
Q824 UN2213
D829 MA221


IC808
μPD74HC123AC OR MC74HC123
IC807
μPD74HC86
OR MC74HC86
IC806
μPD74HC04 OR MC74HC04
IC804
SN74LS136 OR MC74LS136
IC805
SN74LS136 OR MC74LS136
IC805
IC901
M51387P
IC101
LM339
OR
BA10339
Q814R 2SC2712 Y.G
Q814G 2SC2712 Y.G
Q814B 2SC2712 Y.G
Q813B 2SC2712 Y.G
Q827 2SC2712 Y.G
Q828 2SC3757 P.Q
Q838 2SC2712 Y.G
Q850 2SC2712 Y.G
Q826 2SC2712 Y.G
Q840 UN2211
Q830 2SC2712 Y.G
Q829 2SC3757 P.Q
Q832 2SC3757 R.Q
Q822 UN2111
Q823 UN2213
Q825 UN2111
Q824 UN2213
Q820 UN2213
Q834 UN2213
Q835 UN2211
Q836 2SC2712 Y.G
Q851 2SC2859
Q852 UN2213
Q901 2SA733 P.Q.R
Q902 2SC945 P.Q.R
Q961 2SA733 P.Q.R
Q960 2SA733 P.Q.R
Q962 DTC114ES OR AA1A4M
R832R 56
R832G 56
R832B 56
L801 2.2μH ±10%
L802 2.2μH ±10%
C819 47μF 16V H.T
C820 47μF 16V H.T
V1
R V2
V3
G V4
V5
B V6
TTL/ANALOG V7
CONT V8
CLAMP V9
12V M1
5V M2
H.S M3
V.S M4
TTL/ANALOG M5
H.P M6
V.P M7
H.E M8
V.E M9
HDA M10
M11
TO DEF PWB
S1
S2
S3
VP S4
M3 S5
M2 S6
M1 S7
S8
VCC
R.IN
SUB CONT.
G.IN
B.IN
CONT
CLAMP
WHITE
R.OUT
HOLD
SUB BRIGHT
GND
G.OUT
B.OUT
BRIGHT
VR901 4.7K R.GAIN
VR902 4.7K G.GAIN
VR903 4.7K B.GAIN
D901 1SS132
D902 1SS132
D912 1SS132
B1
B2
B3
C1 (CONTROL SEL0)
C2 (CONTROL SEL1)
C3 (CONTROL SEL2)
C4 (UP)
C5 (DOWN)
C6
C7
C8 (+5V)
C9
SL1(S1)
SL2(S2)
SL3(S3)
SL4
SR1(S4)
SR2(S5)
SR3(S6)
SR4(S7)
SR5(S8)
VR102 10K CONTRAST
VR101 BRIGHT 10K
SW109 D.LOAD
TO DEF PWB
S111 COLOR SW
64
16
8
AUTO
COLOR
GRAY
SW110 MODE SW
D124 1SS132
D125 1SS132
D121 1SS132
5V

PWE 282
SUB UNIT PWB

RUN NO.1


TO DEF PWB "X"
X1 X2 X3 X4 X5 X6 X7 X8
85V 12V H G1 ABL -B
IC901 M51387P
Q901 2SA733 P.Q.R
Q902 2SC945 P.Q.R
Q903 2SC945 P.Q.R
Q904 2SC945 P.Q.R
Q905 2SA733 P.Q.R
Q906 2SA733 P.Q.R
Q907 2SA733 P.Q.R
Q908 2SA733 P.Q.R
Q909 2SC3953 D.E
Q910 2SC3811 Q.R
Q911 2SC3953 D.E
Q912 2SC3811 Q.R
Q913 2SC3953 D.E
Q914 2SC3811 Q.R
Q960 2SA733 P.Q.R
Q961 2SA733 P.Q.R
Q962 DTC114ES OR AA1A4M
LC901 ZJSC2-2R2-101
LC902 DSS-222M
TP901 TP902 TP903
HEATER RK GK BK G1 G2 G3
SCREEN FOCUS H.V 23.5KV
PWE 249 VIDEO CRT PWB
TO DEF PWB "H"
12V 5V H.S V.S TTL/ANALOG H.P V.P H.E V.E MDA
74LS136 74HC04 HC86


D101~D116 1SS132
(CONTROL SEL0) (CONTROL SEL1) (CONTROL SEL2) (UP) (DOWN) (+5V)
SW101 H.SIZE U
SW102 H.S D
SW103 H.POSI R
SW104 H.POSI L
SW105 V.SISE U
SW106 V.S D
SW107 V.POSI U
SW108 V.P D
SW109 D.LOAD
VR101 BRIGHT 10K
VR102 10K CONTRAST
IC101 LM339 OR BA10339
S111 COLOR SW
SW110 MODE SW
COLOR GRAY
64 16 8 AUTO
TO DEF PWB "C"
PWE 248B CONTROL PWB
PWE 282 SUB UNIT PWB

CN-A PIN NO.	P/S MINI 15Pin NO.	VGA	MAC- II	PGC	TTL (EGA CGA)
1	1	R	R	R	RA GND
2	6	R.GND	R.GND	——	——
3	2	G	G (W/SYNC)	G	r
4	7	G.GND	6. G.GND	——	——
5	3	B	B	B	R
6	8	B.GND	B.GND	——	——
7	4	ID(8514)	——	——	——
8	5	GND(S.T)	——	GND	g
9	10	GND	GND	GND	V.D
10	11	ID (TO GREEN)	——	——	——
11	12	ID (TO OPEN)	——	GND	H.D
12	13	H.D	GND	C.SYNC	G
13	14	V.D	——	MODE	B
14	15	N.C	——	GND	b

NOTES

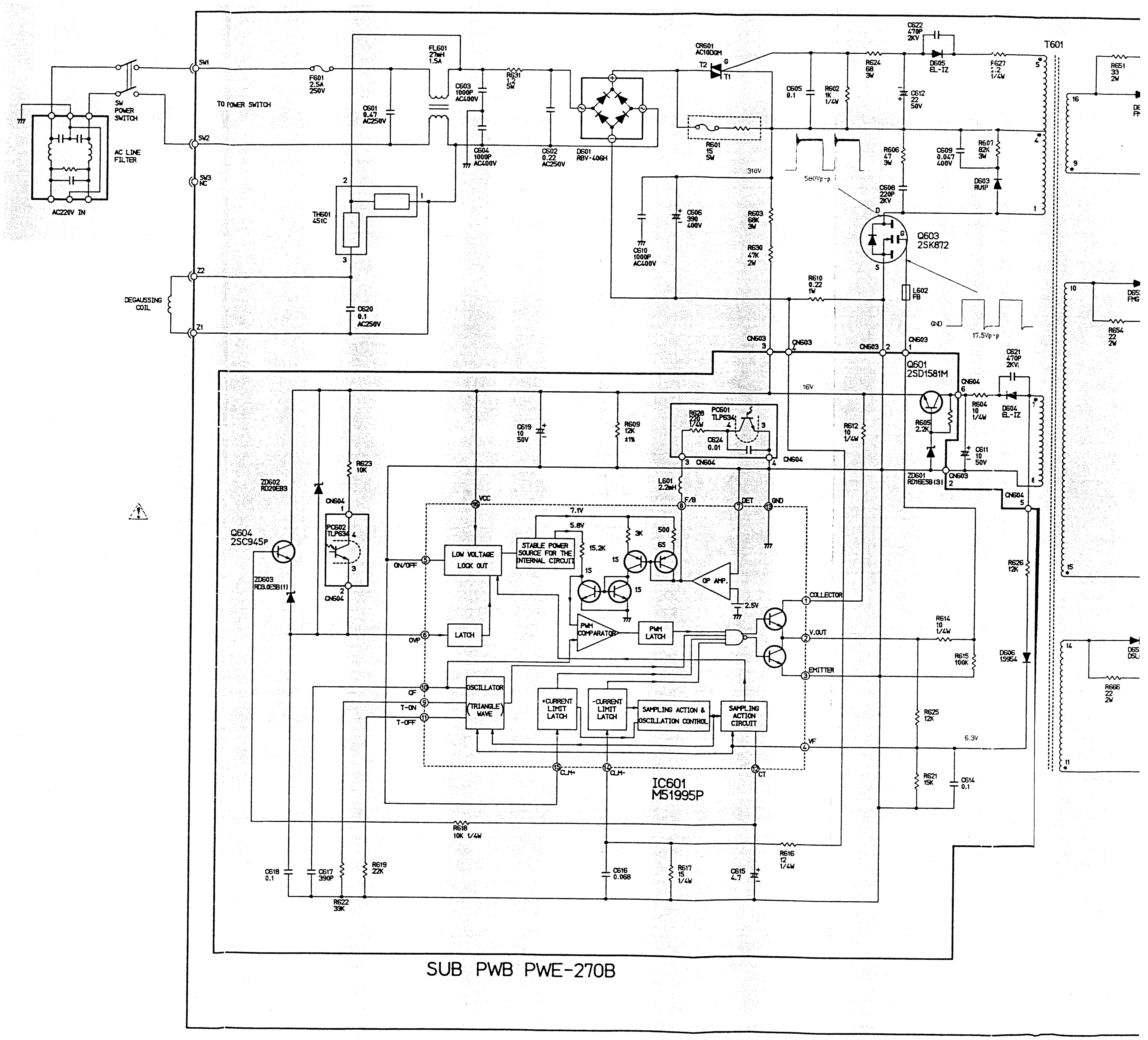
1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1,000,000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACTER SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS CONTROLS ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. AND VIDEO. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE 22KHz SEPARATE SYNC. TTL LEVEL POSITIVE
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL
9. (I) :15.5KHz ≦ F_H < 21KHz
   (II) :21KHz ≦ F_H < 23KHz
   (III) :23KHz ≦ F_H < 27.5KHz
   (IV) :27.5KHz ≦ F_H < 31KHz
   (V) :31KHz ≦ F_H < 33KHz
   (VI) :33KHz ≦ F_H ≦ 38KHz
10. (I) :F_V < 75Hz
    (II) :F_V ≧ 75Hz

WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.
DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

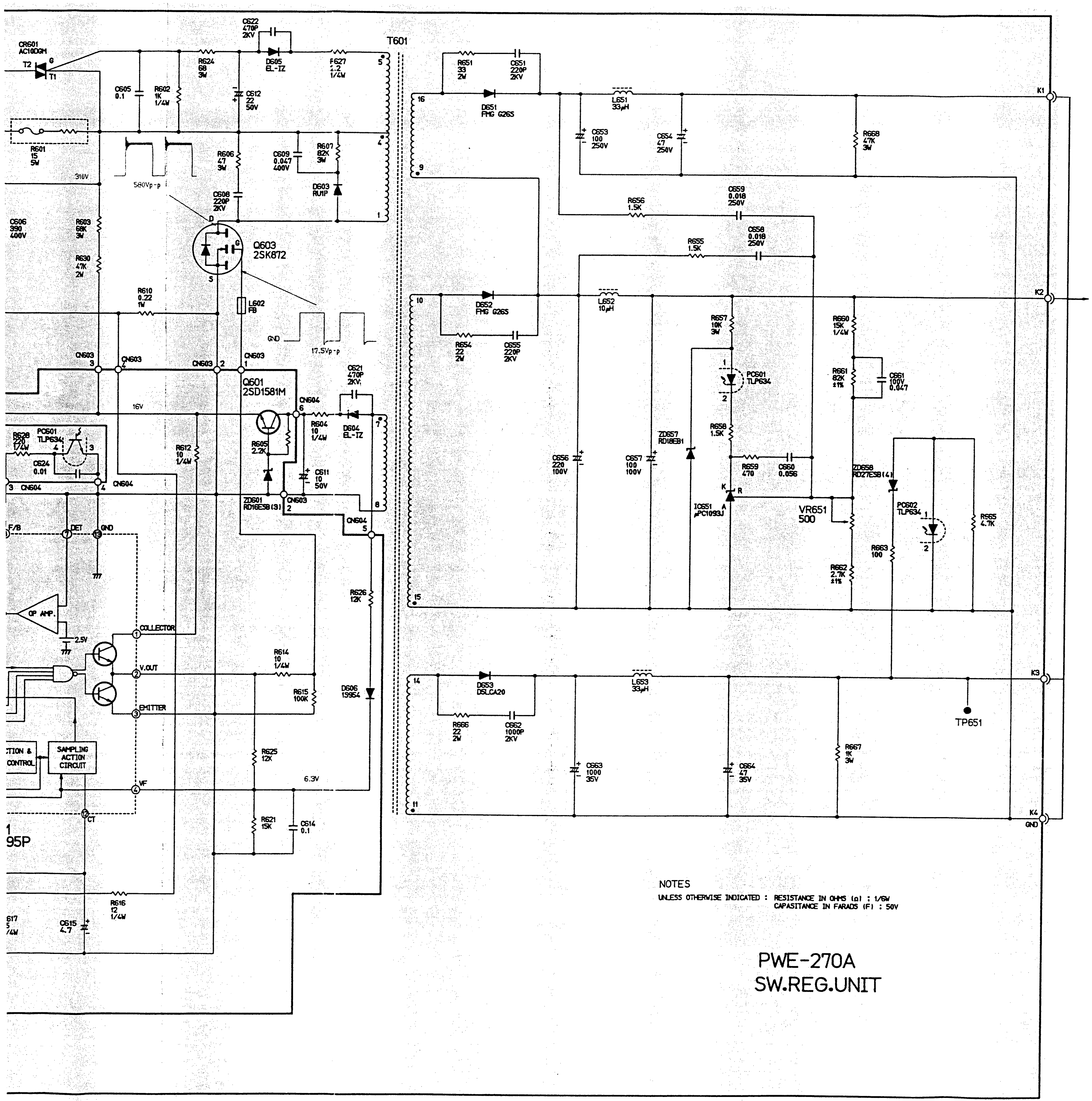
CONTROL (S) MARKED ✱ IS PERMANENTLY FROZEN.
DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

MODEL JC-1404HMN
SCHEMATIC DIAGRAM


AC220V IN
AC LINE FILTER
SW POWER SWITCH
TO POWER SWITCH
SW1
SW2
SW3 NC
Z2
Z1
DEGAUSSING COIL
F601 2.5A 250V
C601 0.47 AC250V
FL601 27mH 1.5A
C603 1000P AC400V
C604 1000P AC400V
R631 1.2 5W
C602 0.22 AC250V
D601 RBV-406H
TH601 451C
C620 0.1 AC250V
CR601 AC10DGM
T2
G
T1
R601 15 5W
310V
C610 1000P AC400V
C606 390 400V
R603 68K 3W
R630 47K 2W
C605 0.1
R602 1K 1/4W
R624 68 3W
C622 470P 2KV
D605 EL-IZ
R627 2.2 1/4W
C612 22 50V
R606 47 3W
C609 0.047 400V
R607 82K 3W
D603 RU1P
C608 220P 2KV
580Vp-p
D
G
S
Q603 2SK872
R610 0.22 1W
L602 FB
GND
17.5Vp-p
T601
R651 33 2W
R654 22 2W
R666 22 2W
CN603
Q601 2SD1581M
CN604
C621 470P 2KV
R604 10 1/4W
D604 EL-IZ
R605 2.2K
C611 10 50V
ZD601 RD16ESB(3)
16V
R612 10 1/4W
R626 12K
D606 1SS54
R614 10 1/4W
R615 100K
R625 12K
6.3V
R621 15K
C614 0.1
R616 12 1/4W
C615 4.7
R617 15 1/4W
C616 0.068
C619 10 50V
R609 12K ±1%
R628 220 1/4W
PC601 TLP634
C624 0.01
L601 2.2mH
R623 10K
ZD602 RD20EB3
PC602 TLP634
Q604 2SC945P
ZD603 RD3.0ESB(1)
VCC
F/B
DET
GND
7.1V
5.6V
3K
500
15.2K
1S
6S
OP AMP.
2.5V
LOW VOLTAGE LOCK OUT
STABLE POWER SOURCE FOR THE INTERNAL CIRCUIT
ON/OFF
OVP
LATCH
PWM COMPARATOR
PWM LATCH
COLLECTOR
V.OUT
EMITTER
VF
CF
T-ON
T-OFF
OSCILLATOR (TRIANGLE WAVE)
+CURRENT LIMIT LATCH
-CURRENT LIMIT LATCH
SAMPLING ACTION & OSCILLATION CONTROL
SAMPLING ACTION CIRCUIT
CLM+
CLM-
CT
IC601 M51995P
R618 10K 1/4W
C618 0.1
C617 390P
R622 33K
R619 22K
SUB PWB PWE-270B

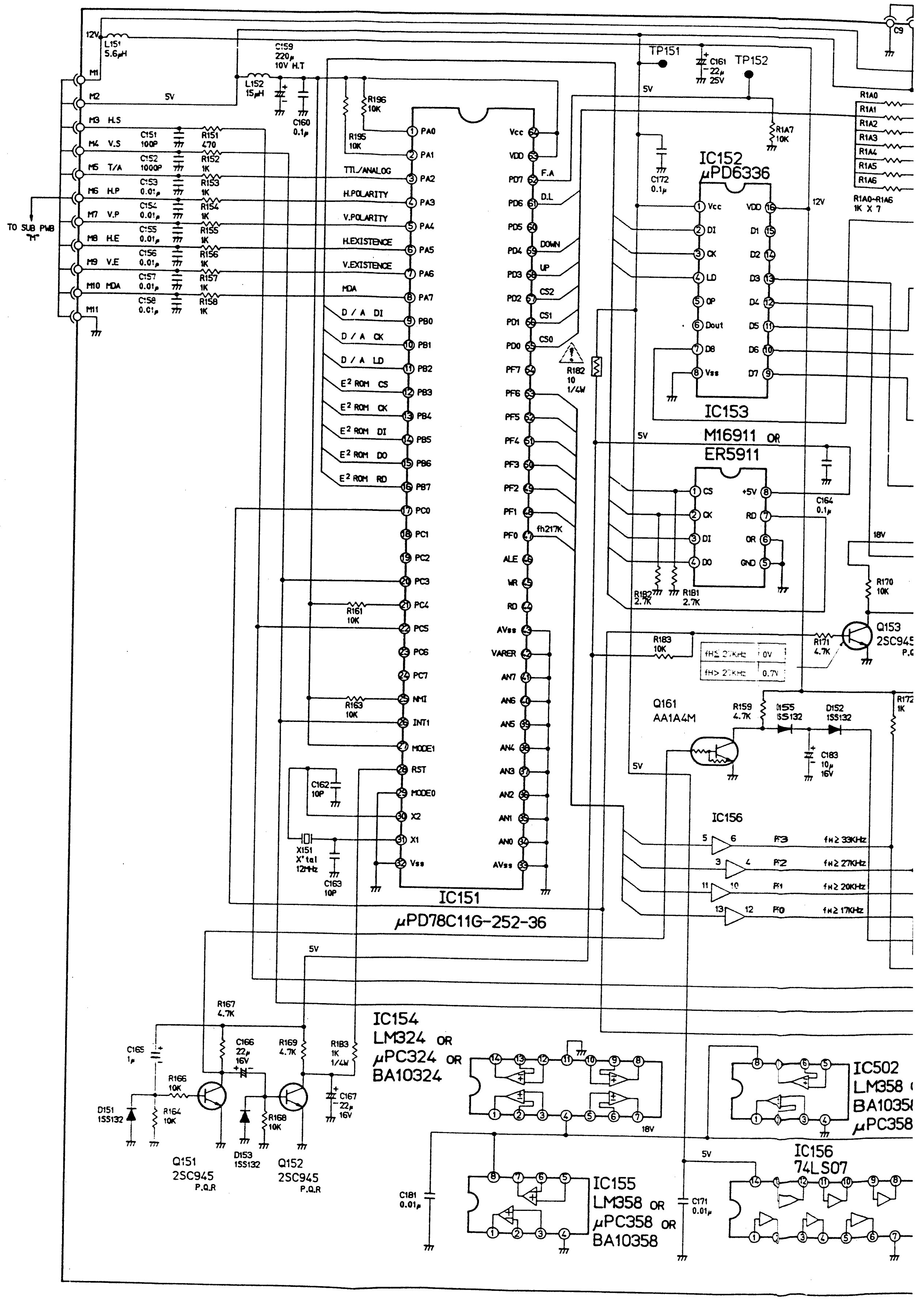
78163511

MODEL JC-1404HMN
SCHEMATIC DIAGRAM


CR601 AC10DGM
C622 470P 2KV
D605 EL-1Z
F627 .2 1/4W
T601
R624 68 3W
C605 0.1
R602 1K 1/4W
C612 22 50V
R601 15 5W
580Vp-p
R606 47 3W
C609 0.047 400V
R607 82K 3W
D603 RU1P
C608 220P 2KV
C606 390 400V
R603 68K 3W
R630 47K 2W
Q603 2SK872
R610 0.22 1W
L602 FB
GND
17.5Vp-p
CN603
CN604
16V
Q601 2SD1581M
C621 470P 2KV
R604 10 1/4W
D604 EL-1Z
R605 2.2K
R612 10 1/4W
PC501 TLP634
R628 220 1/4W
C624 0.01
C611 10 50V
ZD601 RD16ESB(3)
F/B
DET
GND
OP AMP.
2.5V
COLLECTOR
V.OUT
EMITTER
R614 10 1/4W
R615 100K
R626 12K
D606 1S954
SAMPLING ACTION CIRCUIT
ACTION & CONTROL
R625 12K
VF
CT
6.3V
R621 15K
C614 0.1
95P
R616 12 1/4W
C615 4.7
R651 33 2W
C651 220P 2KV
D651 FMG G26S
L651 33μH
C653 100 250V
C654 47 250V
R668 47K 3W
K1
R656 1.5K
C659 0.018 250V
R655 1.5K
C658 0.018 250V
D652 FMG G26S
L652 10μH
K2
TO DEF PWB "K"
R654 22 2W
C655 220P 2KV
R657 10K 3W
PC601 TLP634
R660 15K 1/4W
R661 82K ±1%
C661 100V 0.047
ZD657 RD18EB1
C656 220 100V
C657 100 100V
R658 1.5K
R659 470
C660 0.056
ZD658 RD27ESB(4)
IC651 μPC1093J
VR651 500
PC602 TLP634
R665 4.7K
R663 100
R662 2.7K ±1%
D653 DSLCA20
L653 33μH
K3
R666 22 2W
C662 1000P 2KV
TP651
R667 1K 3W
C663 1000 35V
C664 47 35V
K4 GND

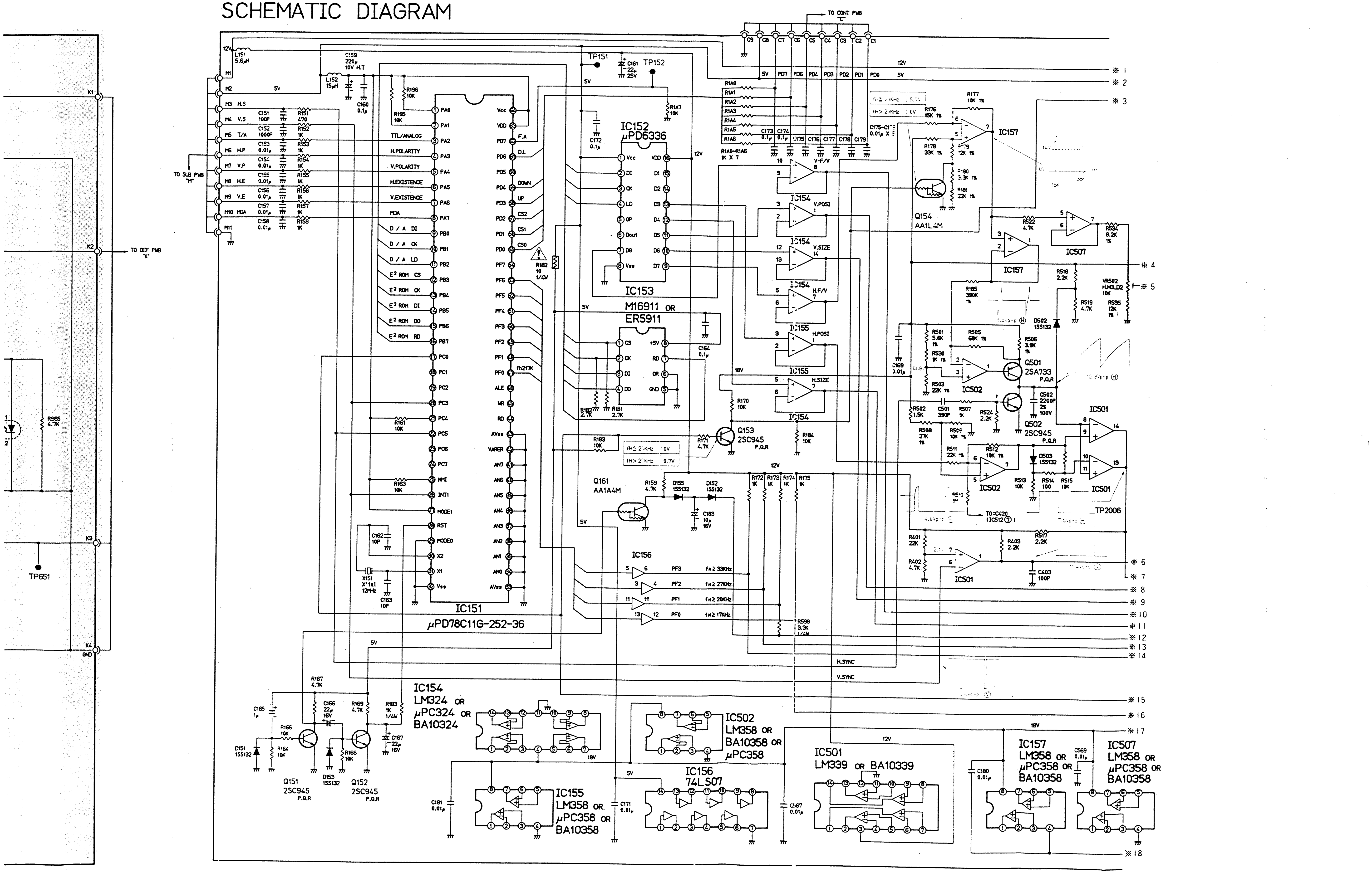
NOTES
UNLESS OTHERWISE INDICATED : RESISTANCE IN OHMS (Ω) : 1/6W
CAPASITANCE IN FARADS (F) : 50V

PWE-270A
SW.REG.UNIT

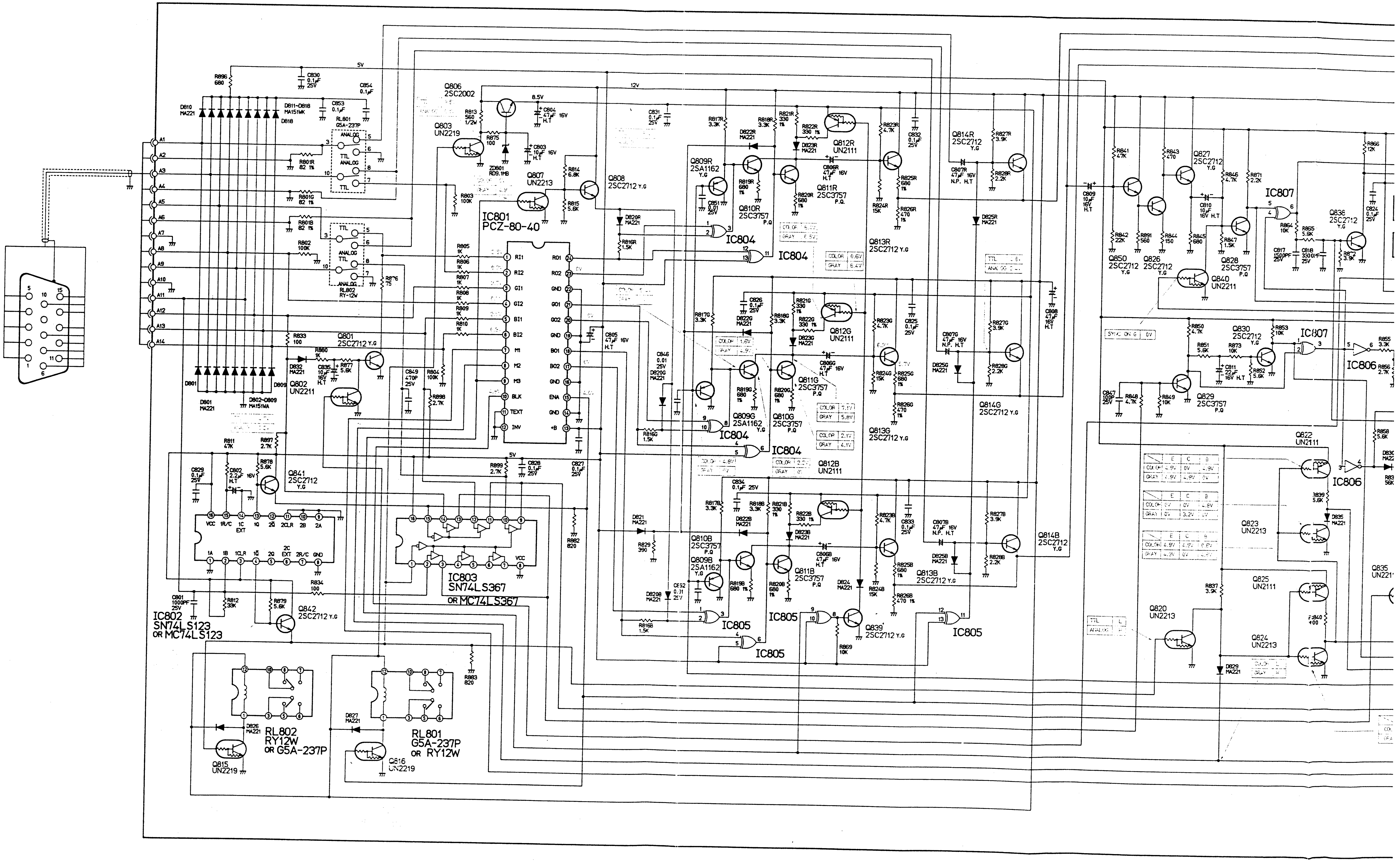

12V
L151 5.6μH
M1
M2
5V
M3 H.S
M4 V.S
M5 T/A
M6 H.P
M7 V.P
M8 H.E
M9 V.E
M10 HDA
M11
TO SUB PWB "H"
C151 100P
C152 1000P
C153 0.01μ
C154 0.01μ
C155 0.01μ
C156 0.01μ
C157 0.01μ
C158 0.01μ
R151 470
R152 1K
R153 1K
R154 1K
R155 1K
R156 1K
R157 1K
R158 1K
C159 220μ 10V H.T
L152 15μH
C160 0.1μ
R196 10K
R195 10K
TTL/ANALOG
H.POLARITY
V.POLARITY
H.EXISTENCE
V.EXISTENCE
HDA
D/A DI
D/A CK
D/A LD
E² ROM CS
E² ROM CK
E² ROM DI
E² ROM DO
E² ROM RD
R161 10K
R163 10K
C162 10P
X151 X'tal 12MHz
C163 10P
IC151
μPD78C11G-252-36
TP151
TP152
C161 22μ 25V
C172 0.1μ
IC152 μPD6336
R1A7 10K
R1A0-R1A6 1K X 7
IC153
M16911 OR ER5911
C164 0.1μ
R182 10 1/4W
fh217K
R182 2.7K
R181 2.7K
R183 10K
fH≤21KHz 0V
fH>21KHz 0.7V
R171 4.7K
Q153 2SC945
R170 10K
18V
Q161 AA1A4M
R159 4.7K
D155 1SS132
D152 1SS132
C183 10μ 16V
IC156
F3 fH≥33KHz
F2 fH≥27KHz
F1 fH≥20KHz
F0 fH≥17KHz
R167 4.7K
C165 1μ
C166 22μ 16V
R169 4.7K
R183 1K 1/4W
C167 22μ 16V
R166 10K
R164 10K
R168 10K
D151 1SS132
D153 1SS132
Q151 2SC945 P.Q.R
Q152 2SC945 P.Q.R
IC154 LM324 OR μPC324 OR BA10324
IC502 LM358 BA1035 μPC358
IC155 LM358 OR μPC358 OR BA10358
IC156 74LS07
C181 0.01μ
C171 0.01μ

MODEL JC-1404HMN
SCHEMATIC DIAGRAM

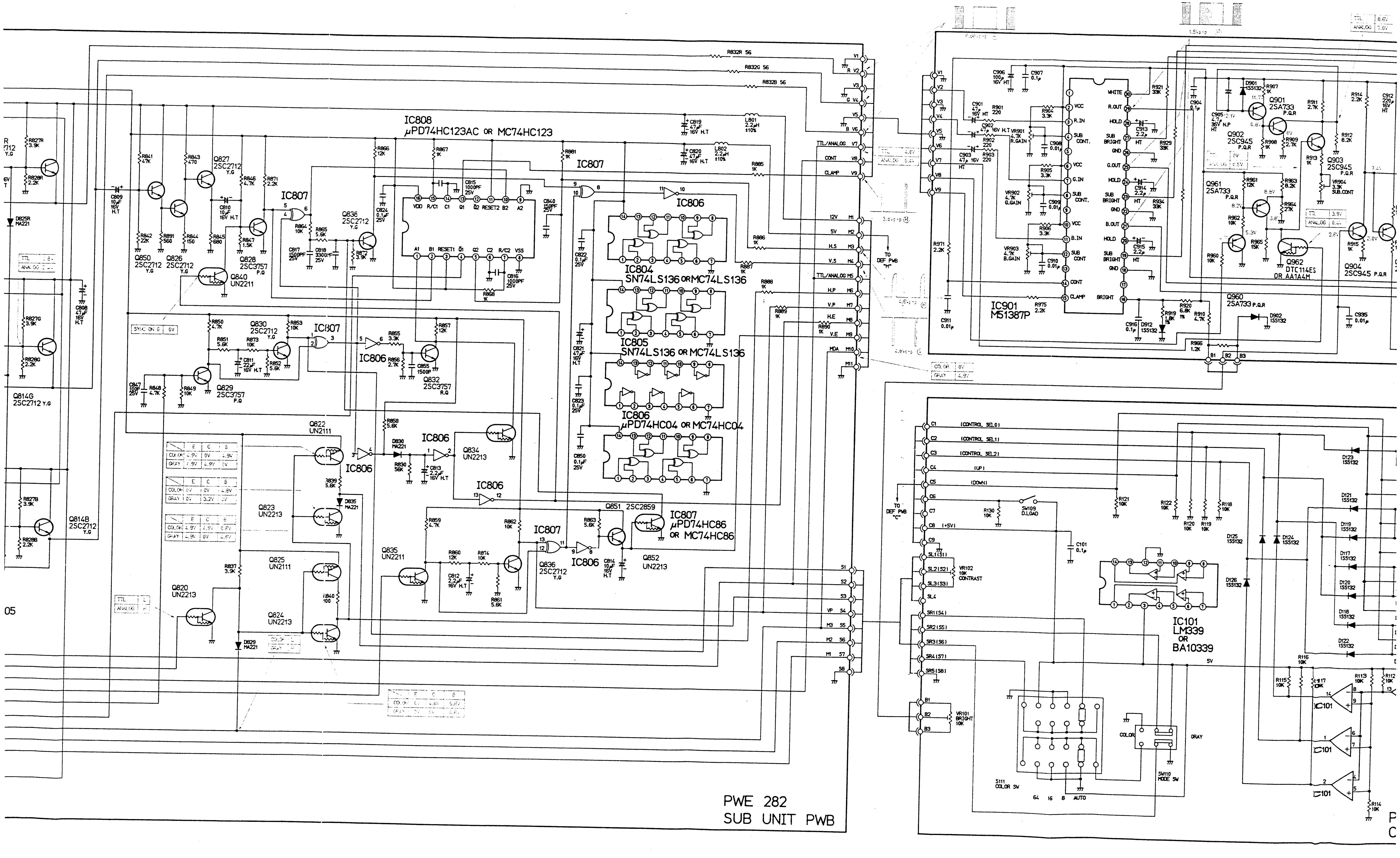
RUN NO.1


TO CONT PWB "C"
TO SUB PWB "H"
TO DEF PWB "K"
K1
K2
K3
K4 GND
TP651
R565 4.7K
TP151
TP152
C161 22μ 25V
C159 220μ 10V H.T
L151 5.6μH
L152 15μH
C160 0.1μ
R196 10K
R195 10K
12V
5V
M1
M2
M3 H.S
M4 V.S
M5 T/A
M6 H.P
M7 V.P
M8 H.E
M9 V.E
M10 MDA
M11
C151 100P
C152 1000P
C153 0.01μ
C154 0.01μ
C155 0.01μ
C156 0.01μ
C157 0.01μ
C158 0.01μ
R151 470
R152 1K
R153 1K
R154 1K
R155 1K
R156 1K
R157 1K
R158 1K
TTL/ANALOG
H.POLARITY
V.POLARITY
H.EXISTENCE
V.EXISTENCE
MDA
D / A DI
D / A CK
D / A LD
E² ROM CS
E² ROM CK
E² ROM DI
E² ROM DO
E² ROM RD
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
NMI
INT1
MODE1
RST
MODE0
X2
X1
Vss
Vcc
VDD
PD7
PD6
PD5
PD4
PD3
PD2
PD1
PD0
PF7
PF6
PF5
PF4
PF3
PF2
PF1
PF0
ALE
WR
RD
AVss
VAREF
AN7
AN6
AN5
AN4
AN3
AN2
AN1
AN0
AVss
F.A
D.L
DOWN
UP
CS2
CS1
CS0
fh217K
R182 10 1/4W
R161 10K
R163 10K
C162 10P
C163 10P
X151 X'tal 12MHz
IC151
μPD78C11G-252-36
IC152
μPD6336
C172 0.1μ
R1A7 10K
Vcc
DI
CK
LD
OP
Dout
D8
Vss
VDD
D1
D2
D3
D4
D5
D6
D7
IC153
M16911 OR ER5911
CS
CK
DI
DO
+5V
RD
OR
GND
C164 0.1μ
R182 2.7K
R181 2.7K
R183 10K
fH≦27KHz 0V
fH>27KHz 0.7V
Q161 AA1A4M
R159 4.7K
D155 1SS132
D152 1SS132
C183 10μ 16V
R171 4.7K
Q153 2SC945 P.Q.R
R170 10K
R184 10K
18V
R172 1K
R173 1K
R174 1K
R175 1K
IC156
PF3 fH≧33KHz
PF2 fH≧27KHz
PF1 fH≧20KHz
PF0 fH≧17KHz
R598 3.3K 1/4W
C9 C8 C7 C6 C5 C4 C3 C2 C1
5V PD7 PD6 PD4 PD3 PD2 PD1 PD0 5V
R1A0
R1A1
R1A2
R1A3
R1A4
R1A5
R1A6
R1A0-R1A6 1K X 7
C173 0.1μ
C174 0.1μ
C175 C176 C177 C178 C179
C175-C179 0.01μ X 5
V-F/V
V.POSI
V.SIZE
H.F/V
H.POSI
H.SIZE
IC154
IC155
fH≦27KHz 5.7V
fH>27KHz 0V
R177 10K 1%
R176 15K 1%
R178 33K 1%
R179 12K 1%
R180 3.3K 1%
R181 22K 1%
IC157
Q154 AA1L4M
R522 4.7K
R534 8.2K 1%
IC507
R518 2.2K
R519 4.7K
VR502 H.HOLD2 10K
R535 12K 1%
R185 390K 1%
D502 1SS132
C169 3.01μ
R501 5.6K 1%
R530 1K 1%
R503 22K 1%
R505 68K 1%
R506 3.9K 1%
IC502
Q501 2SA733 P.Q.R
C502 2200P 2% 100V
R502 1.5K
C501 390P
R507 1K
R524 2.2K
Q502 2SC945 P.Q.R
R508 27K 1%
R509 10K 1%
R511 22K 1%
R512 10K 1%
D503 1SS132
IC501
R513 10K
R514 100
R515 10K
TP2006
TO:C420 (IC512⑦)
R401 22K
R402 4.7K
R403 2.2K
R517 2.2K
C403 100P
H.SYNC
V.SYNC
※1
※2
※3
※4
※5
※6
※7
※8
※9
※10
※11
※12
※13
※14
※15
※16
※17
※18
R167 4.7K
C165 1μ
R166 10K
C166 22μ 16V
R169 4.7K
R183 1K 1/4W
C167 22μ 16V
D151 1SS132
R164 10K
D153 1SS132
R168 10K
Q151 2SC945 P.Q.R
Q152 2SC945 P.Q.R
IC154 LM324 OR μPC324 OR BA10324
IC502 LM358 OR BA10358 OR μPC358
IC155 LM358 OR μPC358 OR BA10358
IC156 74LS07
IC501 LM339 OR BA10339
IC157 LM358 OR μPC358 OR BA10358
IC507 LM358 OR μPC358 OR BA10358
C181 0.01μ
C171 0.01μ
C567 0.01μ
C180 0.01μ
C569 0.01μ

MODEL JC-1404HMN
SCHEMATIC DIAGRAM

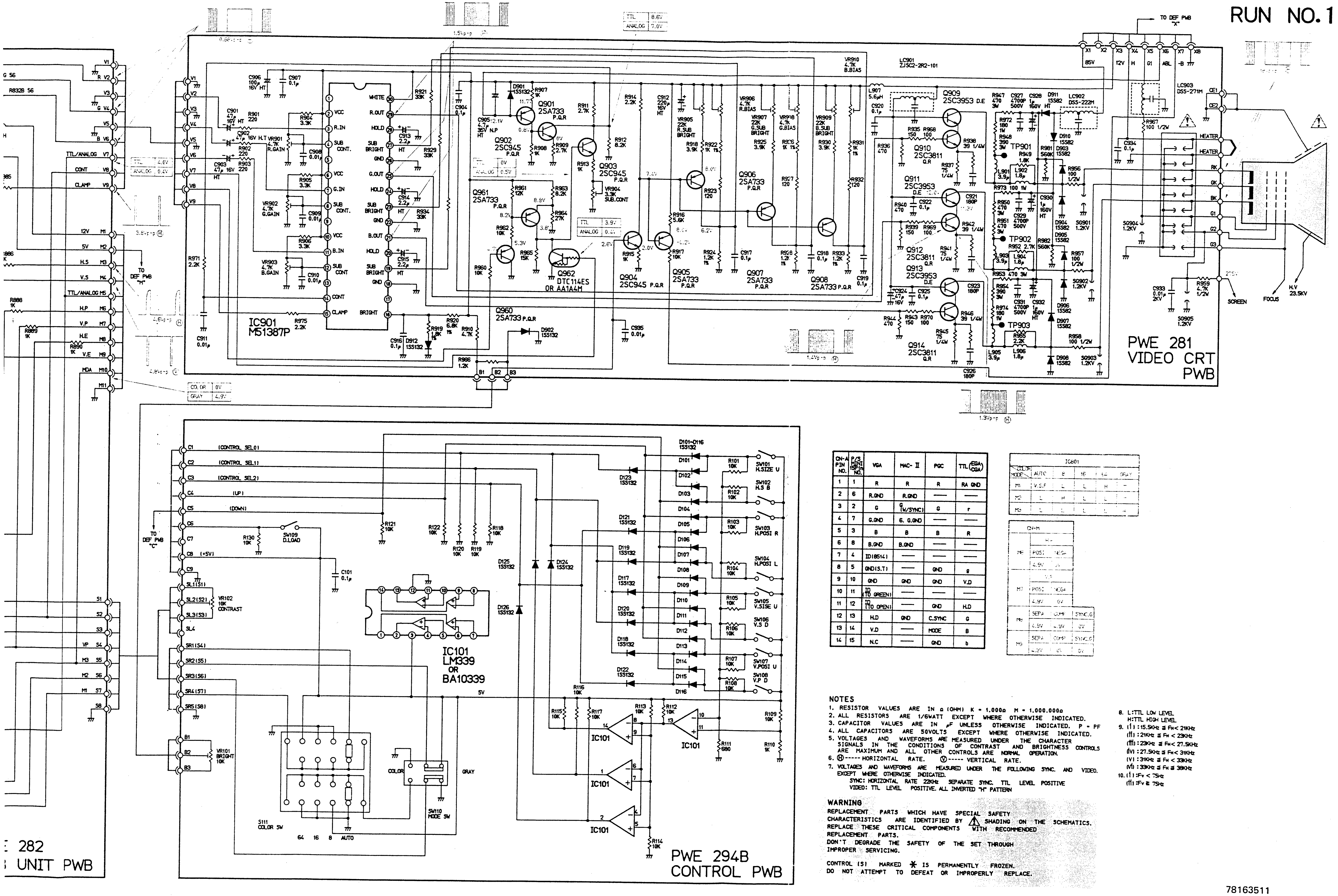


5V
12V
8.5V
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
D810 MA221
D811-D818 MA151MK
D818
D801 MA221
D802-D809 MA151MA
D809
R896 680
C830 0.1μF 25V
C854 0.1μF
C853 0.1μF
RL801 G5A-237P
RL802 RY-12W
ANALOG
TTL
R801R 82 1%
R801G 82 1%
R801B 82 1%
R802 100K
R876 75
Q806 2SC2002
R813 560 1/2W
Q803 UN2219
R875 100
ZD801 RD9.1HB
C804 47μF 16V H.T
C803 10μF 16V H.T
Q807 UN2213
R814 6.8K
R815 5.6K
Q808 2SC2712 Y.G
R803 100K
IC801 PCZ-80-40
R805 1K
R806 1K
R807 1K
R808 1K
R809 1K
R810 1K
RI1
RI2
GI1
GI2
BI1
BI2
M1
M2
M3
BLK
TEXT
INV
RO1
RO2
GND
GO1
GO2
BO1
BO2
ENA
+B
C805 47μF 16V H.T
R833 100
Q801 2SC2712 Y.G
R880 1K
D832 MA221
C835 10μF 16V H.T
R877 5.6K
Q802 UN2211
C849 470P 25V
R804 100K
R898 2.7K
R899 2.7K
C828 0.1μF 25V
C827 0.1μF 25V
R811 47K
R897 2.7K
R878 5.6K
C829 0.1μF 25V
C802 2.2μF 16V H.T
Q841 2SC2712 Y.G
VCC 1R/C 1C EXT 1Q 2Q 2CLR 2B 2A
1A 1B 1CLR 1Q 2Q 2C EXT 2R/C GND
C801 1000PF 25V
R812 33K
R879 5.6K
R834 100
Q842 2SC2712 Y.G
IC802 SN74LS123 OR MC74LS123
IC803 SN74LS367 OR MC74LS367
R882 820
R883 820
RL802 RY12W OR G5A-237P
D826 MA221
Q815 UN2219
RL801 G5A-237P OR RY12W
D827 MA221
Q816 UN2219
C831 0.1μF 25V
R817R 3.3K
R818R 3.3K
R821R 330 1%
R822R 330 1%
D822R MA221
D823R MA221
Q812R UN2111
Q809R 2SA1162 Y.G
R819R 680 1%
C851 0.01 25V
R820R 680 1%
C806R 47μF 16V H.T
Q811R 2SC3757 P.Q
Q810R 2SC3757 P.Q
D820R MA221
R816R 1.5K
IC804
R823R 4.7K
C832 0.1μF 25V
R825R 680 1%
R824R 15K
R826R 470 1%
Q813R 2SC2712 Y.G
Q814R 2SC2712 Y.G
R827R 3.9K
C807R 47μF 16V N.P. H.T
R828R 2.2K
D825R MA221
COLOR 0.6V
GRAY 6.4V
C826 0.1μF 25V
R817G 3.3K
D822G MA221
R818G 3.3K
R821G 330 1%
R822G 330 1%
D823G MA221
Q812G UN2111
C846 0.01 25V
D820G MA221
COLOR 1.6V
GRAY 4.9V
Q809G 2SA1162 Y.G
R819G 680 1%
Q811G 2SC3757 P.Q
R820G 680 1%
C806G 47μF 16V H.T
Q810G 2SC3757 P.Q
R816G 1.5K
COLOR 1.1V
GRAY 5.8V
COLOR 2.1V
GRAY 4.1V
R823G 4.7K
C825 0.1μF 25V
R824G 15K
R825G 680 1%
R826G 470 1%
Q813G 2SC2712 Y.G
C807G 47μF 16V N.P. H.T
D825G MA221
R827G 3.9K
R828G 2.2K
Q814G 2SC2712 Y.G
C808 47μF 16V H.T
Q812B UN2111
C834 0.1μF 25V
R817B 3.3K
R818B 3.3K
R821B 330 1%
R822B 330 1%
D822B MA221
D823B MA221
D821 MA221
R829 390
Q810B 2SC3757 P.Q
Q809B 2SA1162 Y.G
C852 0.01 25V
D820B MA221
R819B 680 1%
R820B 680 1%
C806B 47μF 16V H.T
Q811B 2SC3757 P.Q
R816B 1.5K
IC805
R823B 4.7K
C833 0.1μF 25V
R825B 680 1%
D824 MA221
R824B 15K
R826B 470 1%
Q813B 2SC2712 Y.G
C807B 47μF 16V N.P. H.T
D825B MA221
R827B 3.9K
R828B 2.2K
Q814B 2SC2712 Y.G
Q839 2SC2712 Y.G
R869 10K
C809 10μF 16V H.T
R841 47K
R843 470
Q827 2SC2712 Y.G
R845 4.7K
R871 2.2K
C810 10μF 16V H.T
R842 22K
R891 560
R844 150
R845 680
R847 1.5K
Q850 2SC2712 Y.G
Q826 2SC2712
Q828 2SC3757 P.Q
Q840 UN2211
IC807
R864 10K
R865 5.6K
C817 1500PF 25V
C818 3300PF 25V
R872 3.9K
Q836 2SC2712 Y.G
C824 0.1μF 25V
R866 12K
SYNC ON G 0V
R850 4.7K
Q830 2SC2712 Y.G
R853 10K
R851 5.6K
R873 10K
C811 22μF 16V H.T
R852 5.6K
C847 100P 25V
R848 4.7K
R849 10K
Q829 2SC3757 P.Q
R855 3.3K
R856 2.7K
IC806
R858 5.6K
Q822 UN2111
R839 5.6K
D835 MA221
Q823 UN2213
R837 3.9K
Q825 UN2111
R840 100
Q820 UN2213
Q824 UN2213
D829 MA221
Q835 UN2211
TTL
ANALOG


IC808
μPD74HC123AC OR MC74HC123
IC807
IC806
IC804
SN74LS136 OR MC74LS136
IC805
SN74LS136 OR MC74LS136
IC806
μPD74HC04 OR MC74HC04
IC807
μPD74HC86
OR MC74HC86
IC901
M51387P
IC101
LM339
OR
BA10339
Q827 2SC2712
Q826 2SC2712
Q850 2SC2712
Q828 2SC3757
Q840 UN2211
Q836 2SC2712
Q830 2SC2712
Q829 2SC3757
Q832 2SC3757
Q822 UN2111
Q834 UN2213
Q823 UN2213
Q825 UN2111
Q824 UN2213
Q820 UN2213
Q835 UN2211
Q851 2SC2859
Q852 UN2213
Q814G 2SC2712
Q814B 2SC2712
Q901 2SA733
Q902 2SC945
Q903 2SC945
Q961 2SA733
Q962 DTC114ES OR AA1A4M
Q904 2SC945
Q960 2SA733
R832R 56
R832G 56
R832B 56
L801 2.2μH
L802 2.2μH
TTL/ANALOG
CONT
CLAMP
12V
5V
H.S
V.S
H.P
V.P
H.E
V.E
MDA
TO DEF PWB "H"
TO DEF PWB "C"
SYNC ON G
COLOR
GRAY
TTL
ANALOG
WHITE
R.OUT
HOLD
SUB BRIGHT
GND
G.OUT
B.OUT
VCC
R.IN
G.IN
B.IN
SUB CONT.
CONT
CLAMP
BRIGHT
VR901 4.7K R.GAIN
VR902 4.7K G.GAIN
VR903 4.7K B.GAIN
VR904 3.3K SUB.CONT
CONTROL SEL0
CONTROL SEL1
CONTROL SEL2
UP
DOWN
(+5V)
SW109 D.LOAD
VR102 10K CONTRAST
VR101 BRIGHT 10K
S111 COLOR SW
64 16 8 AUTO
SW110 MODE SW
COLOR
GRAY
5V
05

PWE 282
SUB UNIT PWB

RUN NO.1


TO DEF PWB "X"
X1 X2 X3 X4 X5 X6 X7 X8
85V 12V H G1 ABL -B
PWE 281
VIDEO CRT
PWB
PWE 294B
CONTROL PWB
282
UNIT PWB
IC901
M51387P
IC101
LM339
OR
BA10339
Q901 2SA733 P.Q.R
Q902 2SC945 P.Q.R
Q903 2SC945 P.Q.R
Q904 2SC945 P.Q.R
Q905 2SA733 P.Q.R
Q906 2SA733 P.Q.R
Q907 2SA733 P.Q.R
Q908 2SA733 P.Q.R
Q909 2SC3953 D.E
Q910 2SC3811 Q.R
Q911 2SC3953 D.E
Q912 2SC3811 Q.R
Q913 2SC3953 D.E
Q914 2SC3811 Q.R
Q960 2SA733 P.Q.R
Q961 2SA733 P.Q.R
Q962 DTC114ES OR AA1A4M
LC901 ZJSC2-2R2-101
LC902 DSS-222M
LC903 DSS-271M
TP901
TP902
TP903
HEATER
HEATER
RK
GK
BK
G1
G2
G3
SCREEN
FOCUS
H.V 23.5KV
TO DEF PWB "H"
TO DEF PWB "C"
S111 COLOR SW
64 16 8 AUTO
SW110 MODE SW
COLOR
GRAY
SW101 H.SIZE U
SW102 H.S B
SW103 H.POSI R
SW104 H.POSI L
SW105 V.SISE U
SW106 V.S D
SW107 V.POSI U
SW108 V.P D
SW109 D.LOAD
VR101 BRIGHT 10K
VR102 10K CONTRAST
D101-D116 1SS132
TTL 8.6V
ANALOG 7.0V
COLOR 0V
GRAY 4.9V
1.3Vp-p (H)
1.4Vp-p (H)
1.5Vp-p (V)
3.6Vp-p (H)
4.8Vp-p (H)

CN-A PIN NO.	P/S MINI 15Pin NO.	VGA	MAC- II	PGC	TTL (EGA CGA)
1	1	R	R	R	RA GND
2	6	R.GND	R.GND	——	——
3	2	G	G (W/SYNC)	G	r
4	7	G.GND	6. G.GND	——	——
5	3	B	B	B	R
6	8	B.GND	B.GND	——	——
7	4	ID(8514)	——	——	——
8	5	GND(S.T)	——	GND	g
9	10	GND	GND	GND	V.D
10	11	ID (TO GREEN)	——	——	——
11	12	ID (TO OPEN)	——	GND	H.D
12	13	H.D	GND	C.SYNC	G
13	14	V.D	——	MODE	B
14	15	N.C	——	GND	b

IC801					
MODE \ COLOR	AUTO	8	16	64	GRAY
M1	V.S.F	L	L	H	–
M2	L	H	L	L	–
M3	L	L	L	L	H

CN-M			
M6	H.F		
	POSI	NEGA	
	4.9V	0V	
M7	V.F		
	POSI	NEGA	
	4.9V	0V	
M8	SEPA	COMP	SYNC.G
	4.9V	4.9V	0V
M9	SEPA	COMP	SYNC.G
	4.9V	0V	0V

NOTES

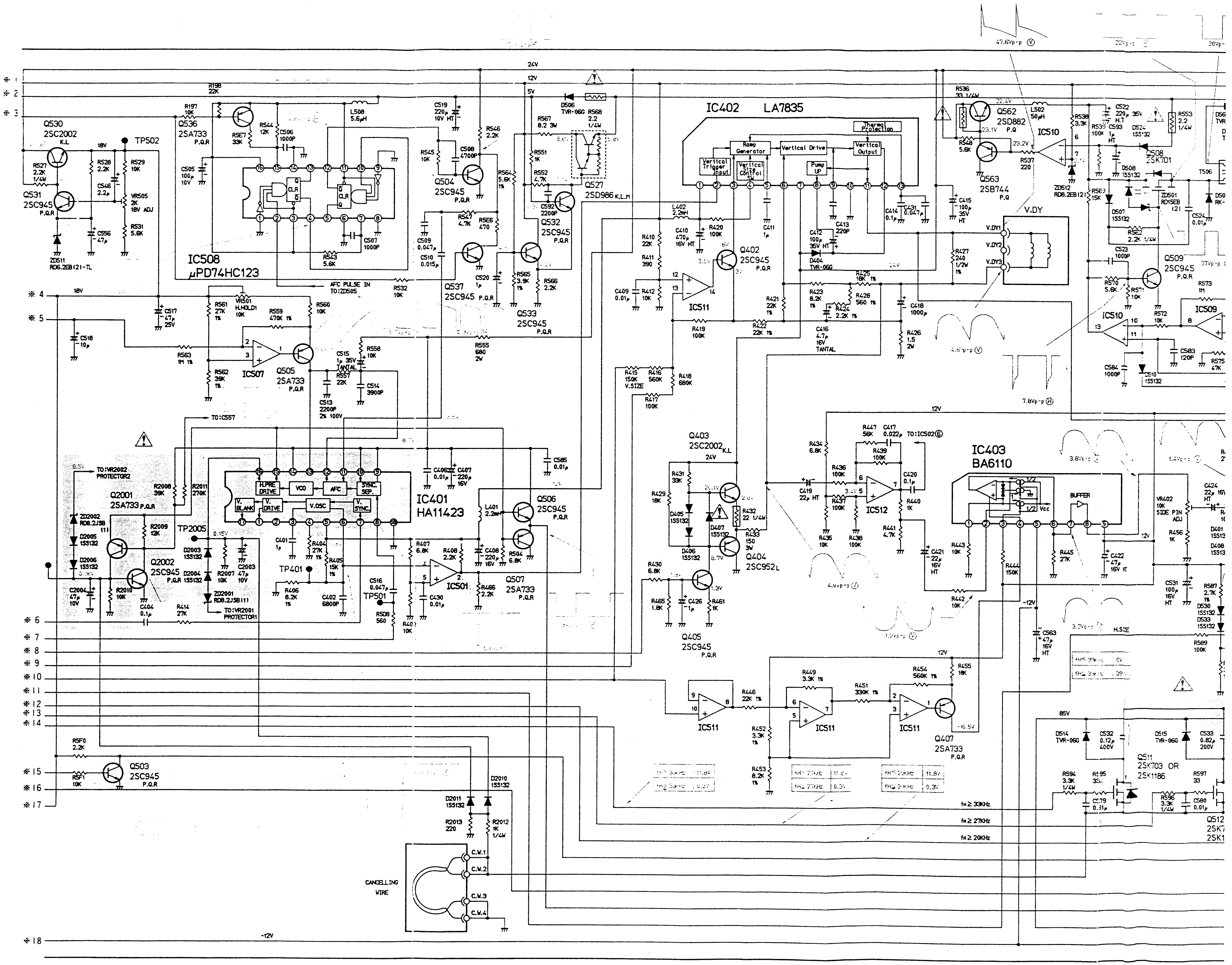
1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1.000.000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACTER SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS CONTROLS ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. AND VIDEO. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE 22KHz SEPARATE SYNC. TTL LEVEL POSITIVE
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL
9. (i) : 15.5KHz ≦ FH < 21KHz
   (ii) : 21KHz ≦ FH < 23KHz
   (iii) : 23KHz ≦ FH < 27.5KHz
   (iv) : 27.5KHz ≦ FH < 31KHz
   (v) : 31KHz ≦ FH < 33KHz
   (vi) : 33KHz ≦ FH ≦ 38KHz
10. (i) : FV < 75Hz
    (ii) : FV ≧ 75Hz

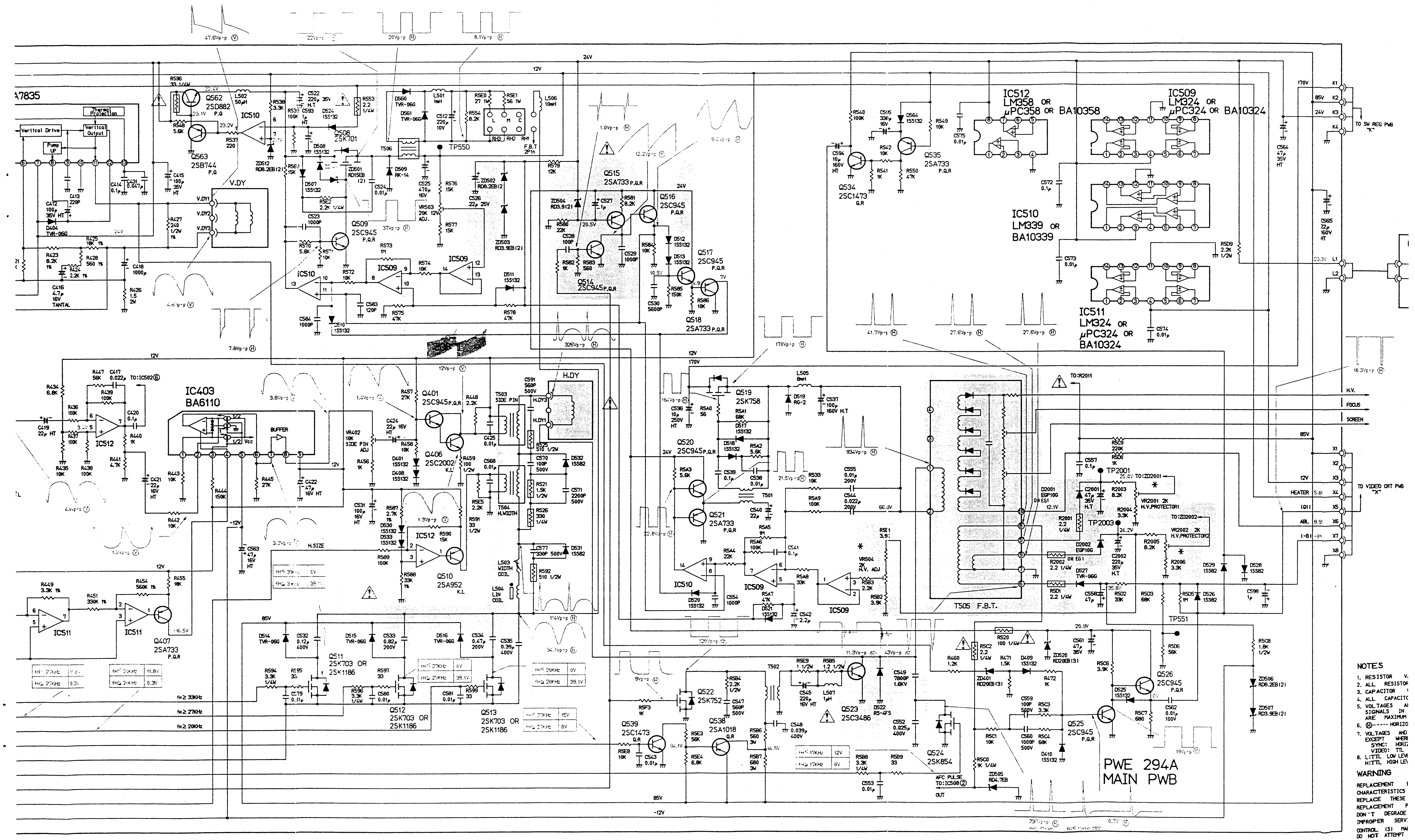
WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.
DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

CONTROL (S) MARKED ✱ IS PERMANENTLY FROZEN.
DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

78163511


24V
12V
5V
IC402 LA7835
Ramp Generator
Vertical Drive
Vertical Output
Thermal Protection
Vertical Trigger Input
Vertical Size Control
Pump UP
IC508
μPD74HC123
IC401
HA11423
H.PRE DRIVE
VCO
AFC
SYNC. SEP.
V. BLANK
V. DRIVE
V.OSC
V. SYNC.
IC403
BA6110
BUFFER
IC507
IC501
IC511
IC512
IC510
IC509
Q530 2SC2002 K.L
Q531 2SC945 P.Q.R
Q536 2SA733 P.Q.R
Q504 2SC945 P.Q.R
Q527 2SD986 K.L.H
Q532 2SC945 P.Q.R
Q537 2SC945 P.Q.R
Q533 2SC945 P.Q.R
Q505 2SA733 P.Q.R
Q506 2SC945 P.Q.R
Q507 2SA733 P.Q.R
Q2001 2SA733 P.Q.R
Q2002 2SC945 P.Q.R
Q503 2SC945 P.Q.R
Q402 2SC945 P.Q.R
Q403 2SC2002 K.L
Q404 2SC952 L
Q405 2SC945 P.Q.R
Q407 2SA733 P.Q.R
Q562 2SD882 P.Q
Q563 2SB744 P.Q
Q509 2SC945 P.Q.R
Q511 2SK703 OR 2SK1186
Q512
V.DY
V.DY1
V.DY2
V.DY3
TP502
TP2005
TP401
TP501
AFC PULSE IN TO:ZD505
TO:C557
TO:VR2002 PROTECTOR2
TO:VR2001 PROTECTOR1
TO:IC502⑥
CANCELLING WIRE
C.W.1
C.W.2
C.W.3
C.W.4
VR505 2K 18V ADJ
VR501 H.HOLD1 10K
VR402 10K SIDE PIN ADJ
R415 150K V.SIZE
H.SIZE
fH ≥ 33KHz
fH ≥ 27KHz
fH ≥ 20KHz
47.6Vp-p Ⓥ
4.6Vp-p Ⓥ
7.8Vp-p Ⓗ
3.6Vp-p Ⓥ
4.0Vp-p Ⓥ
1.2Vp-p Ⓥ
-12V
85V
※1
※2
※3
※4
※5
※6
※7
※8
※9
※10
※11
※12
※13
※14
※15
※16
※17
※18


PWE 294A
MAIN PWB
A7835
Thermal Protection
Vertical Drive
Vertical Output
Pump UP
V.DY
IC403
BA6110
BUFFER
H.SIZE
H.DY
T503 SIDE PIN
T504 H.WIDTH
L503 WIDTH COIL
L504 LIN COIL
T505 F.B.T.
T501
T502
T506
TP550
TP551
TP2001
TP2003
IC512 LM358 OR µPC358 OR BA10358
IC509 LM324 OR µPC324 OR BA10324
IC510 LM339 OR BA10339
IC511 LM324 OR µPC324 OR BA10324
Q562 2SD882
Q563 2SB744
Q506 2SK701
Q509 2SC945
Q515 2SA733
Q516 2SC945
Q514 2SC945
Q517 2SC945
Q518 2SA733
Q534 2SC1473
Q535 2SA733
Q401 2SC945
Q406 2SC2002
Q510 2SA952
Q407 2SA733
Q511 2SK703 OR 2SK1186
Q512 2SK703 OR 2SK1186
Q513 2SK703 OR 2SK1186
Q519 2SK758
Q520 2SC945
Q521 2SA733
Q522 2SK752
Q523 2SC3486
Q524 2SK854
Q525 2SC945
Q526 2SC945
Q538 2SA1018
Q539 2SC1473
VR402 10K SIDE PIN ADJ
VR503 20K 12V ADJ.
VR504 2K H.V. ADJ
VR2001 2K H.V.PROTECTOR1
VR2002 2K H.V.PROTECTOR2
F.B.T 2Pin
TO:IC502⑥
TO:R2011
TO:ZD2001
TO:ZD2002
AFC PULSE TO:IC508②
OUT
TO SW REG PWB "K"
TO VIDEO CRT PWB "X"
H.V.
FOCUS
SCREEN
HEATER
(G1)
ABL
(-B)
K1
K2
K3
K4
L1
L2
X1
X2
X3
X4
X5
X6
X7
X8
170V
85V
24V
12V
-12V
47.6Vp-p Ⓥ
22Vp-p Ⓗ
20Vp-p Ⓗ
8.1Vp-p Ⓗ
1.0Vp-p Ⓗ
12.2Vp-p Ⓗ
9.0Vp-p Ⓗ
37Vp-p Ⓗ
4.6Vp-p Ⓥ
7.8Vp-p Ⓗ
326Vp-p Ⓗ
170Vp-p Ⓗ
41.7Vp-p Ⓗ
27.6Vp-p Ⓗ
27.6Vp-p Ⓗ
16.3Vp-p Ⓗ
164Vp-p Ⓗ
934Vp-p Ⓗ
21.5Vp-p Ⓗ
22.8Vp-p Ⓗ
3.8Vp-p Ⓥ
1.4Vp-p Ⓥ
12Vp-p Ⓥ
1.3Vp-p Ⓥ
4.0Vp-p Ⓥ
1.2Vp-p Ⓥ
3.2Vp-p Ⓥ
114Vp-p Ⓗ
34.1Vp-p Ⓗ
120Vp-p Ⓗ
9Vp-p Ⓗ
11.3Vp-p Ⓗ
43Vp-p Ⓗ
19Vp-p Ⓗ
0.7V Ⓗ
fH ≥ 33KHz
fH ≥ 27KHz
fH ≥ 20KHz

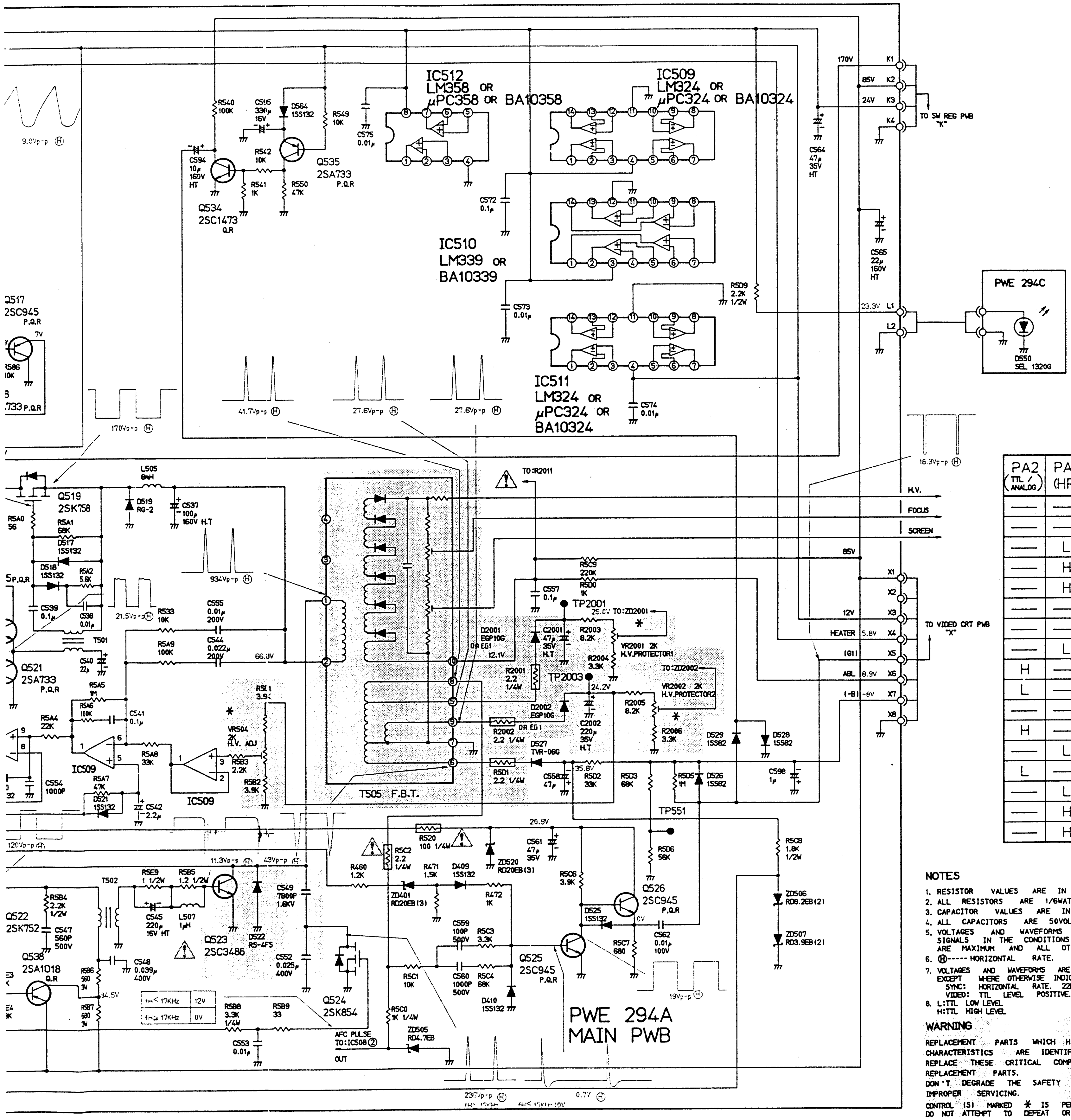
NOTES

1. RESISTOR V
2. ALL RESISTOR
3. CAPACITOR
4. ALL CAPACITO
5. VOLTAGES A
SIGNALS IN
ARE MAXIMUM
6. Ⓗ----- HORIZO
7. VOLTAGES AND
EXCEPT WHER
SYNC: HORI
VIDEO: TTL
8. L:TTL LOW LEV
H:TTL HIGH LE

WARNING

REPLACEMENT
CHARACTERISTICS
REPLACE THESE
REPLACEMENT P
DON'T DEGRADE
IMPROPER SERV
CONTROL (S) MA
DO NOT ATTEMPT

RUN NO.1


IC512
LM358 OR μPC358 OR BA10358
IC509
LM324 OR μPC324 OR BA10324
IC510
LM339 OR BA10339
IC511
LM324 OR μPC324 OR BA10324
Q534
2SC1473
Q535
2SA733
Q517
2SC945
Q519
2SK758
Q521
2SA733
Q522
2SK752
Q536
2SA1018
Q523
2SC3486
Q524
2SK854
Q525
2SC945
Q526
2SC945
PWE 294C
D550
SEL 1320G
T505 F.B.T.
TP2001
TP2003
TP551
VR2001 2K H.V.PROTECTOR1
VR2002 2K H.V.PROTECTOR2
VR504 2K H.V. ADJ
TO:R2011
TO:ZD2001
TO:ZD2002
170V
85V
24V
23.3V
12V
HEATER 5.6V
(G1)
ABL 8.9V
(-B) -8V
H.V.
FOCUS
SCREEN
TO SW REG PWB "K"
TO VIDEO CRT PWB "X"
AFC PULSE TO:IC508②
OUT
41.7Vp-p Ⓗ
27.6Vp-p Ⓗ
27.6Vp-p Ⓗ
170Vp-p Ⓗ
934Vp-p Ⓗ
21.5Vp-p Ⓗ
16.3Vp-p Ⓗ
11.3Vp-p Ⓗ
43Vp-p Ⓗ
19Vp-p Ⓗ
236Vp-p Ⓗ
0.7V Ⓥ
9.0Vp-p Ⓗ
PWE 294A
MAIN PWB

PD0 (CS0)	PD1 (CS1)	PD2 (CS2)	
L	H	H	H.POSI
H	L	L	H.SIZE
H	L	H	V.POSI
H	H	L	V.SIZE
H	H	H	DISABLE

PD3	PD4	
H	L	UP
L	H	DOWN
H	H	DISABLE

PD6	PD7	
L	L	USER CONTROL MODE
L	H	FACTORY ADJ. MODE
H	L	DATA LOAD
H	H	FACTORY DATA WRITING

PA2 (TTL / ANALOG)	PA3 (HP)	PA4 (VP)	PA5 (HE)	PA6 (VE)	PA7 (MODE)	FH	FV	
—	—	—	—	—	L	(i)	(i)	CGA
—	—	—	—	—	L	(ii)	(i)	EGA
—	L	H	—	—	L	(v)	(i)	VGA 350
—	H	L	—	—	L	(v)	(i)	VGA 400
—	H	H	—	—	L	(v)	(i)	VGA 480
—	—	—	—	—	L	(vi)	(ii)	8514A
—	—	—	L	L	L	(vi)	(i)	MAC II
—	L	L	H	H	L	(vi)	(i)	800＊600(1)P.P.
H	—	—	—	—	H	—	(i)	MDA
L	—	—	—	—	L	(iv)	(i)	PGC
—	—	—	—	—	L	(iii)	(i)	EGA (2)
H	—	—	—	—	L	(iv)	(i)	EGA (3)
—	L	L	—	—	L	(v)	(i)	ANALOG(1) P.P.
L	—	—	—	—	H	—	(i)	USER
—	L	H	H	H	L	(vi)	(i)	800＊600(2)P.N.
—	H	L	H	H	L	(vi)	(i)	800＊600(3)N.P.
—	H	H	H	H	L	(vi)	(i)	800＊600(4)N.N.

NOTES

1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1.000.000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACTER SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS CONTROLS ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. AND VIDEO. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE. 22KHz SEPARATE SYNC. TTL LEVEL POSITIVE
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL

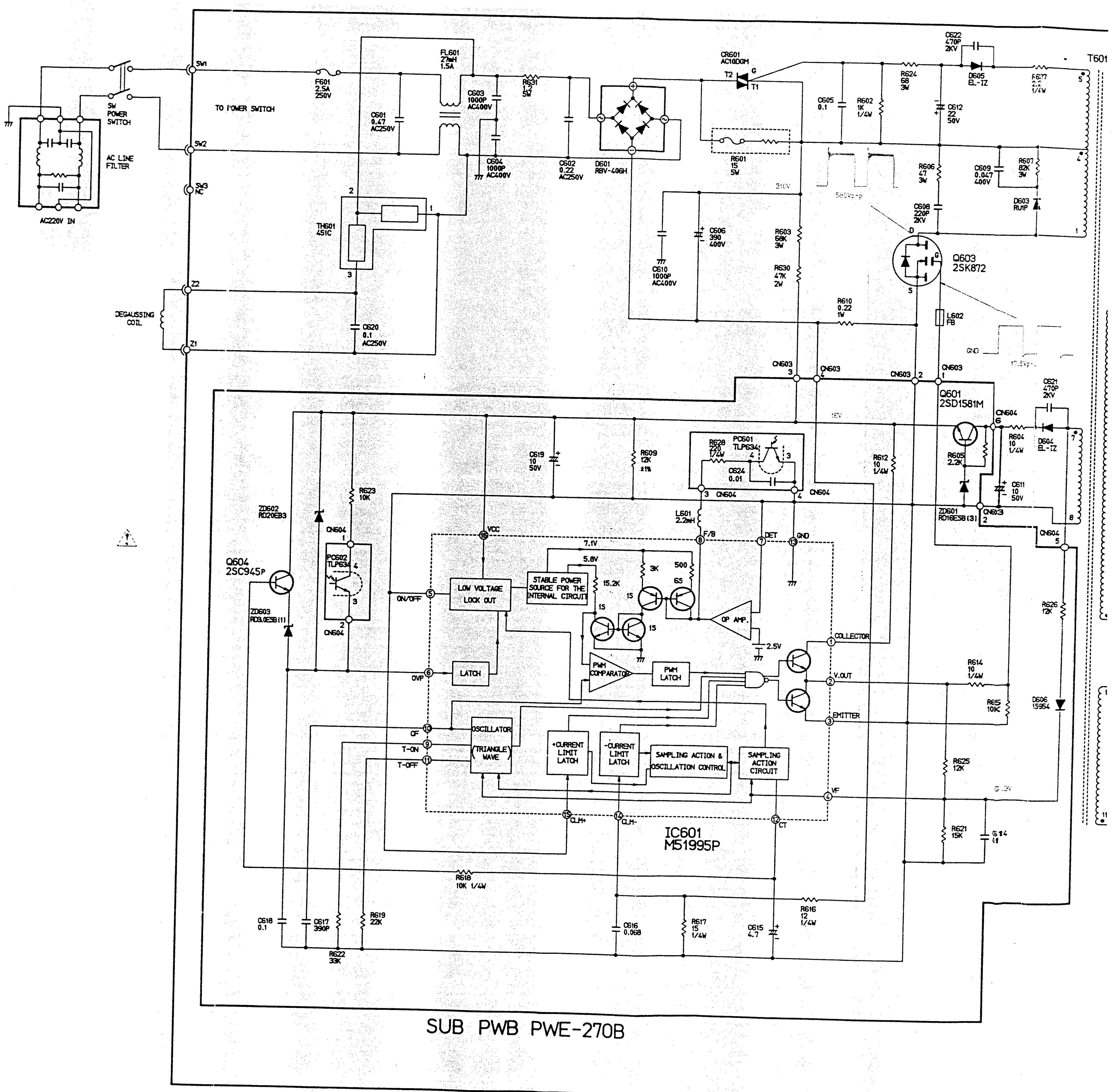
9. (I) : 15.5kHz ≦ FH < 21kHz
   (II) : 21kHz ≦ FH < 23kHz
   (III) : 23kHz ≦ FH < 27.5kHz
   (IV) : 27.5kHz ≦ FH < 31kHz
   (V) : 31kHz ≦ FH < 33kHz
   (VI) : 33kHz ≦ FH ≦ 38kHz
10. (I) : FV < 75Hz
    (II) : FV ≧ 75Hz

WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

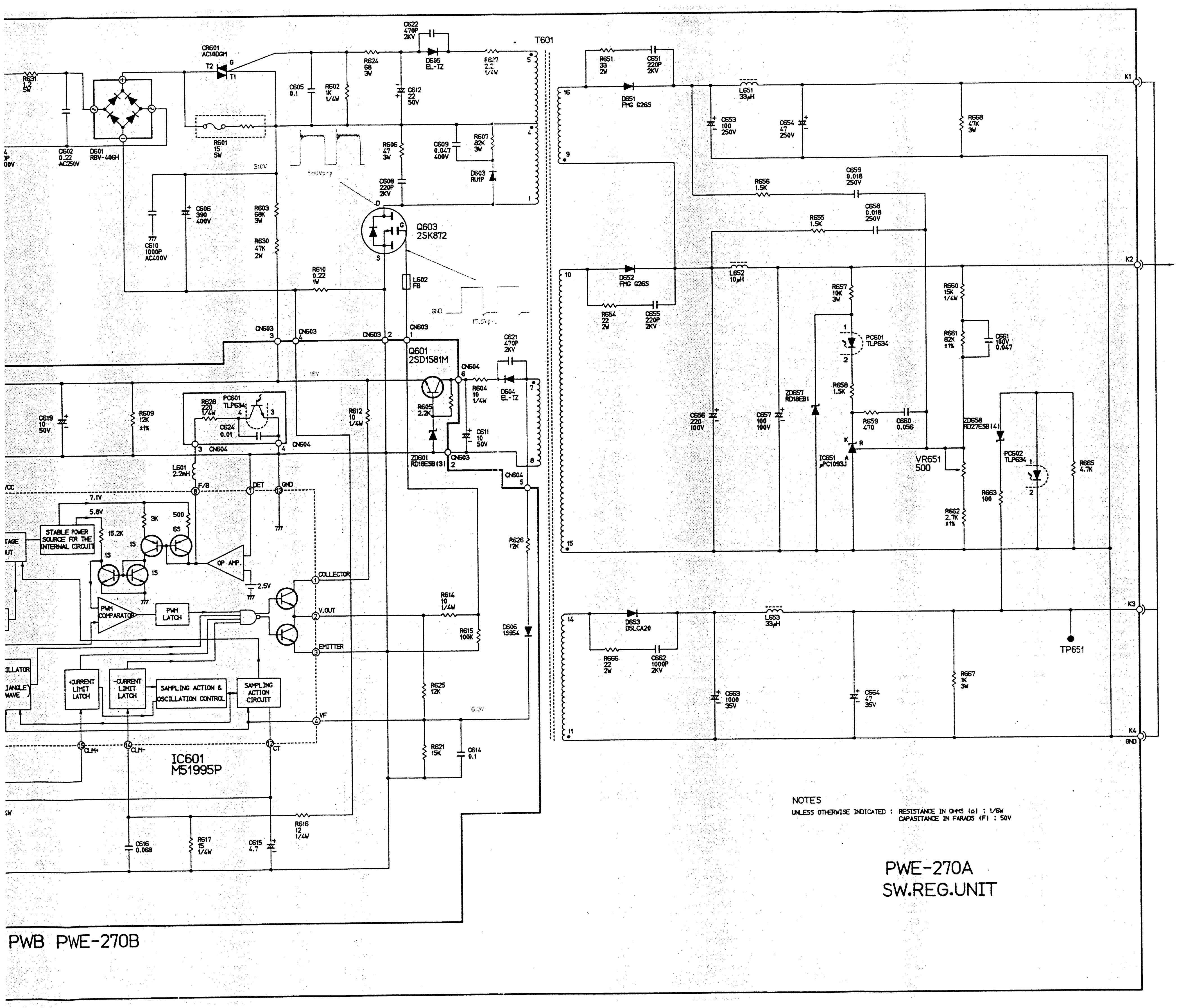
CONTROL (S) MARKED ＊ IS PERMANENTLY FROZEN.
DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

MODEL JC-1404HMN
SCHEMATIC DIAGRAM

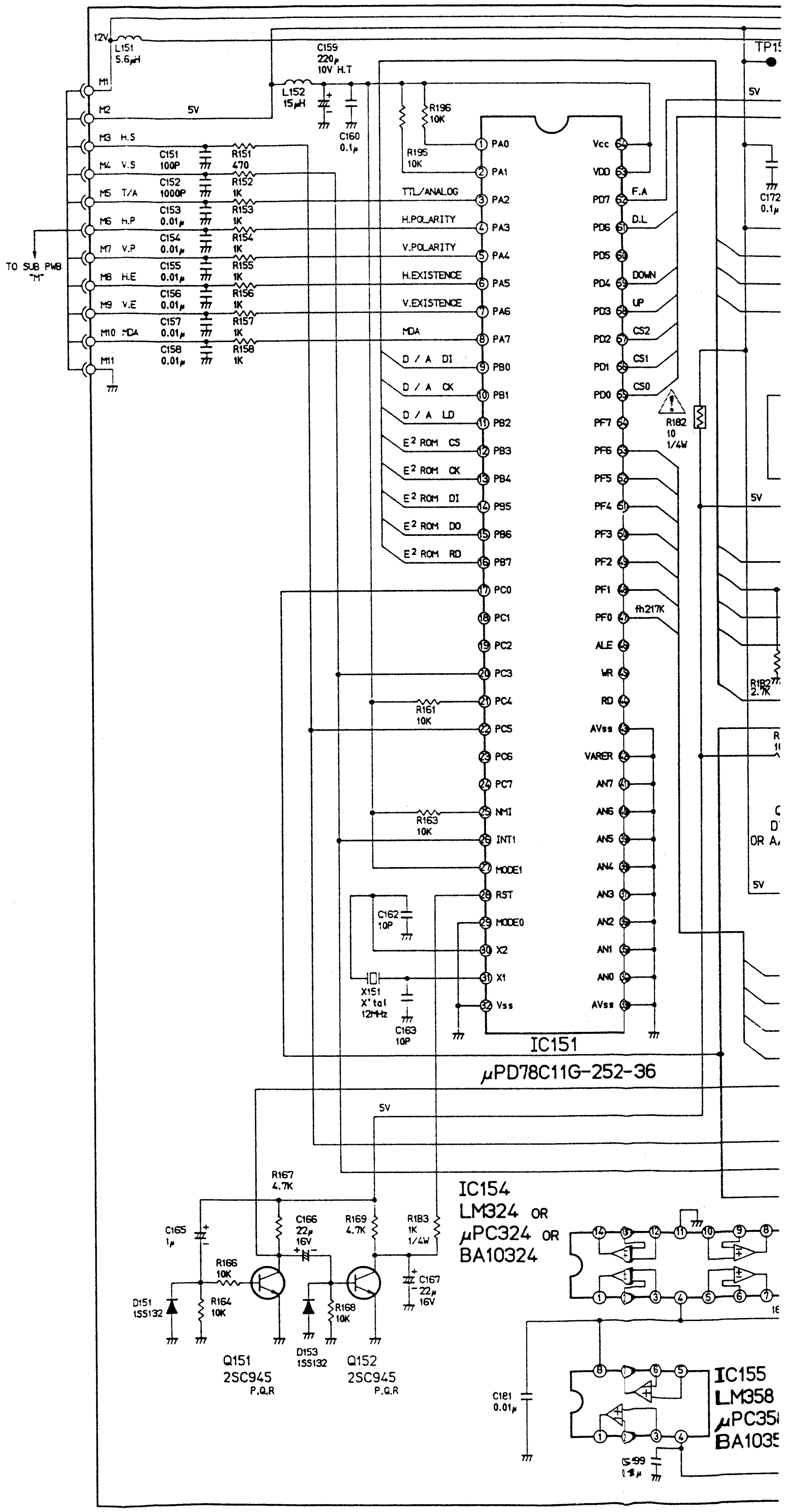

AC220V IN
AC LINE FILTER
SW POWER SWITCH
SW1
SW2
SW3 NC
TO POWER SWITCH
F601 2.5A 250V
FL601 27mH 1.5A
C601 0.47 AC250V
C603 1000P AC400V
C604 1000P AC400V
R631 1.2 5W
C602 0.22 AC250V
D601 RBV-406H
CR601 AC10DGM
T2
T1
G
R601 15 5W
TH601 451C
DEGAUSSING COIL
Z2
Z1
C620 0.1 AC250V
C610 1000P AC400V
C606 390 400V
R603 68K 3W
R630 47K 2W
C605 0.1
R602 1K 1/4W
R624 68 3W
C622 470P 2KV
D605 EL-1Z
R627
C612 22 50V
R606 47 3W
C609 0.047 400V
R607 82K 3W
D603 RU1P
C608 220P 2KV
Q603 2SK872
D
G
S
R610 0.22 1W
L602 FB
T601
CN603
Q601 2SD1581M
C621 470P 2KV
CN604
R604 10 1/4W
D604 EL-1Z
R605 2.2K
C611 10 50V
ZD601 RD16ESB(3)
R612 10 1/4W
PC601 TLP634
R628 220 1/4W
C624 0.01
R609 12K ±1%
C619 10 50V
L601 2.2mH
R623 10K
ZD602 RD20EB3
PC602 TLP634
Q604 2SC945P
ZD603 RD3.0ESB(1)
VCC
ON/OFF
OVP
LOW VOLTAGE LOCK OUT
STABLE POWER SOURCE FOR THE INTERNAL CIRCUIT
LATCH
7.1V
5.8V
15.2K
3K
500
65
15
2.5V
OP AMP.
F/B
DET
GND
PWM COMPARATOR
PWM LATCH
COLLECTOR
V.OUT
EMITTER
OF
T-ON
T-OFF
OSCILLATOR (TRIANGLE WAVE)
+CURRENT LIMIT LATCH
-CURRENT LIMIT LATCH
SAMPLING ACTION & OSCILLATION CONTROL
SAMPLING ACTION CIRCUIT
VF
CLM+
CLM-
CT
IC601 M51995P
R614 10 1/4W
R615 10K
D606 1SS94
R626 12K
R625 12K
R621 15K
C614
R618 10K 1/4W
R616 12 1/4W
C618 0.1
C617 390P
R619 22K
R622 33K
C616 0.068
R617 15 1/4W
C615 4.7
SUB PWB PWE-270B

78163512

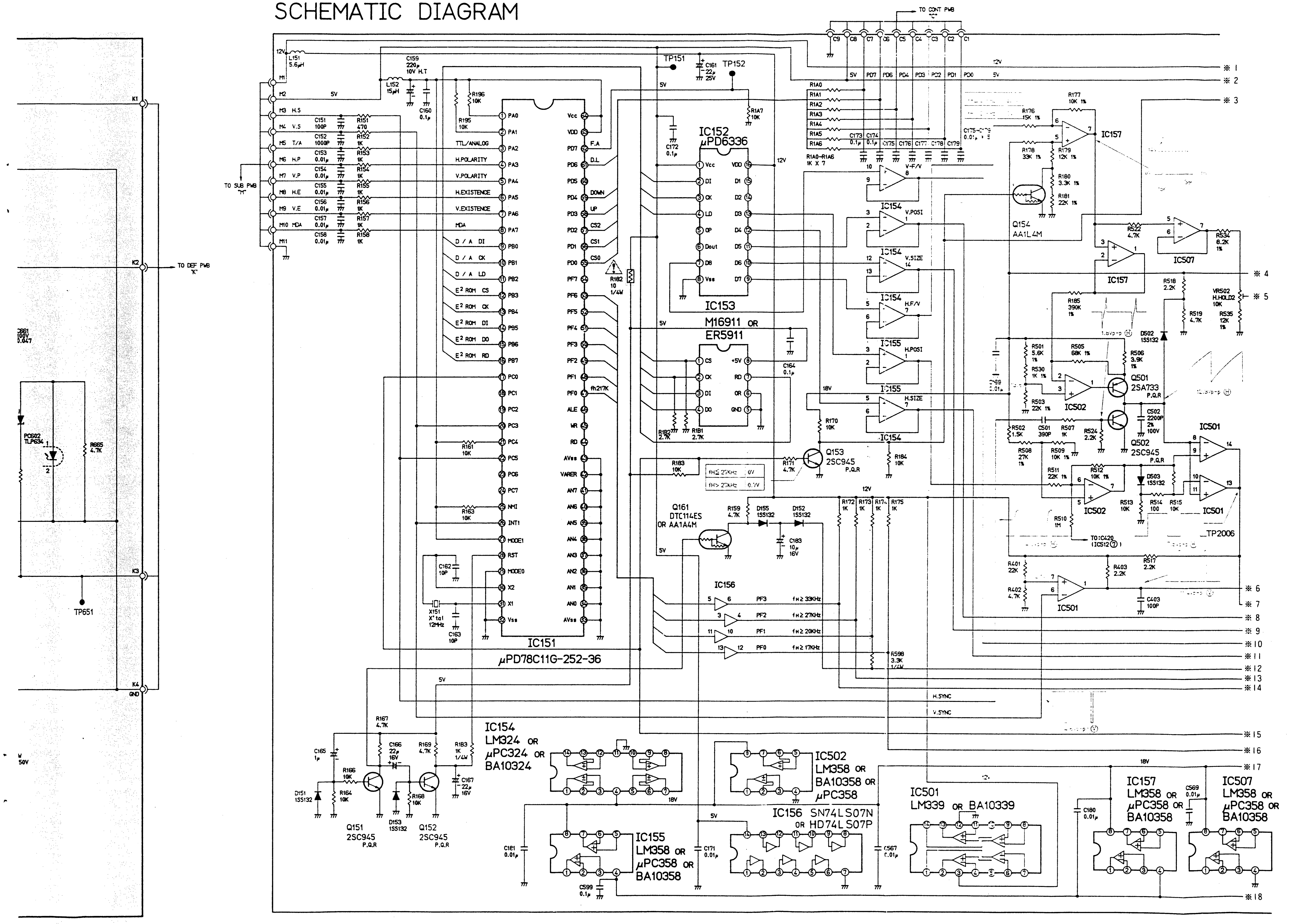
MODEL JC-1404HMN
SCHEMATIC DIAGRAM

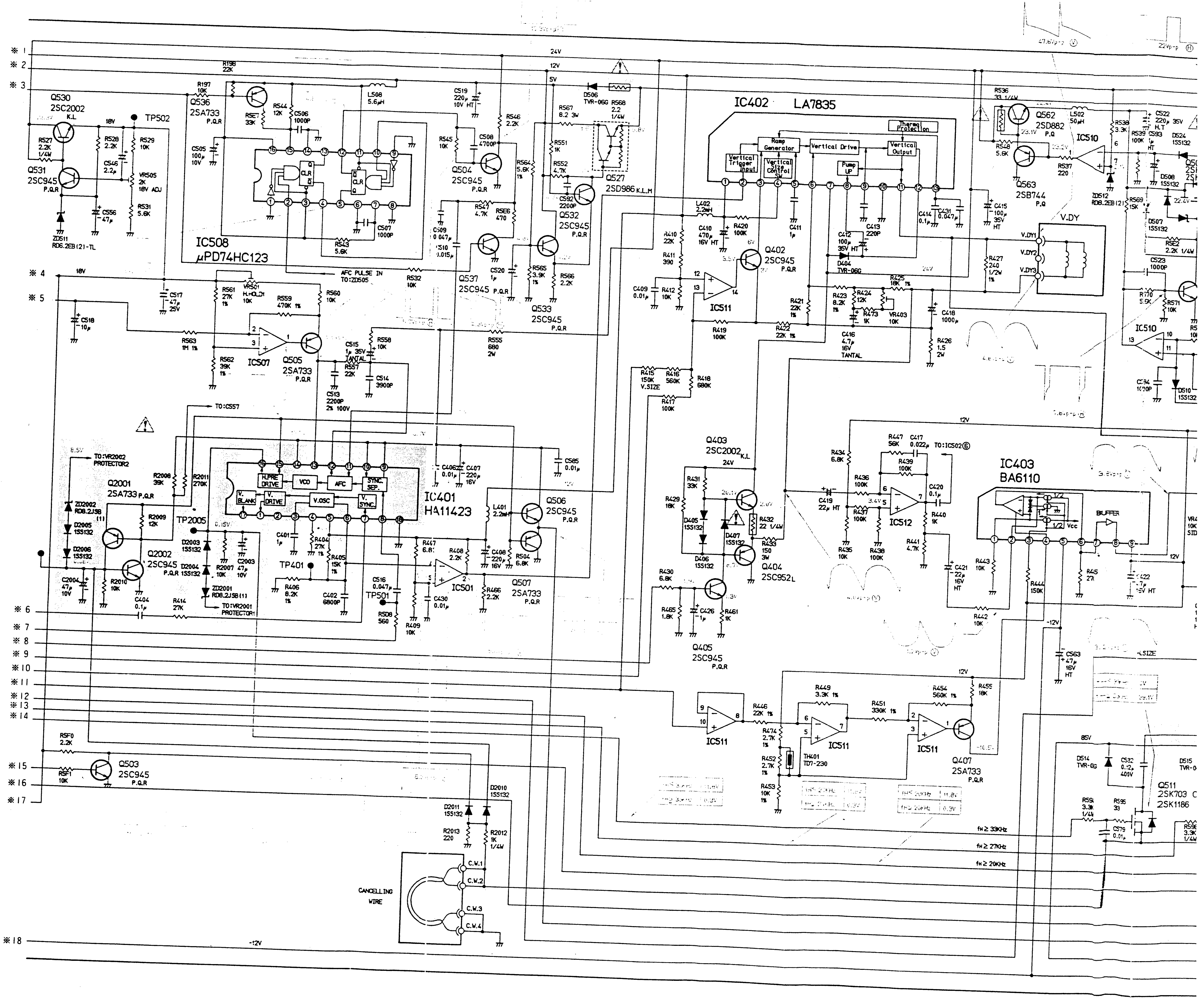

T601
CR601 AC10DGM
D601 RBV-406H
C602 0.22 AC250V
R601 15 5W
C605 0.1
R602 1K 1/4W
R624 68 3W
C622 470P 2KV
D605 EL-1Z
R627 2.2 1/4W
C612 22 50V
R606 47 3W
C609 0.047 400V
R607 82K 3W
D603 RU1P
C608 220P 2KV
C606 390 400V
C610 1000P AC400V
R603 68K 3W
R630 47K 2W
Q603 2SK872
R610 0.22 1W
L602 FB
Q601 2SD1581M
C621 470P 2KV
R604 10 1/4W
D604 EL-1Z
R605 2.2K
C611 10 50V
ZD601 RD16ESB(3)
C619 10 50V
R609 12K ±1%
R628 220 1/4W
PC601 TLP634
C624 0.01
R612 10 1/4W
L601 2.2mH
CN603
CN604
F/B
DET
GND
7.1V
5.8V
STABLE POWER SOURCE FOR THE INTERNAL CIRCUIT
OP AMP.
PWM COMPARATOR
PWM LATCH
COLLECTOR
V.OUT
EMITTER
+CURRENT LIMIT LATCH
-CURRENT LIMIT LATCH
SAMPLING ACTION & OSCILLATION CONTROL
SAMPLING ACTION CIRCUIT
VF
CLM+
CLM-
CT
IC601 M51995P
R626 12K
R614 10 1/4W
R615 100K
D606 1SS54
R625 12K
R621 15K
C614 0.1
C616 0.068
R617 15 1/4W
C615 4.7
R616 12 1/4W
PWB PWE-270B
R651 33 2W
C651 220P 2KV
D651 FMG G26S
L651 33μH
C653 100 250V
C654 47 250V
R668 47K 3W
R656 1.5K
C659 0.018 250V
R655 1.5K
C658 0.018 250V
D652 FMG G26S
L652 10μH
R654 22 2W
C655 220P 2KV
R657 10K 3W
PC601 TLP634
R650 15K 1/4W
R661 82K ±1%
C661 100V 0.047
R658 1.5K
R659 470
C660 0.056
ZD657 RD18EB1
C656 220 100V
C657 100 100V
IC651 μPC1093J
VR651 500
ZD658 RD27ESB(4)
PC602 TLP634
R665 4.7K
R662 2.7K ±1%
R653 100
K1
K2
K3
K4 GND
TO DEF PWB "K"
D653 D5LC20
L653 33μH
R666 22 2W
C662 1000P 2KV
C663 1000 35V
C664 47 35V
R667 1K 3W
TP651
PWE-270A SW.REG.UNIT

NOTES
UNLESS OTHERWISE INDICATED : RESISTANCE IN OHMS (Ω) : 1/6W
CAPASITANCE IN FARADS (F) : 50V


TO SUB PWB "M"
12V
L151 5.6μH
M1
M2
M3 H.S
M4 V.S
M5 T/A
M6 H.P
M7 V.P
M8 H.E
M9 V.E
M10 MDA
M11
5V
C159 220μ 10V H.T
L152 15μH
C160 0.1μ
R196 10K
R195 10K
C151 100P
C152 1000P
C153 0.01μ
C154 0.01μ
C155 0.01μ
C156 0.01μ
C157 0.01μ
C158 0.01μ
R151 470
R152 1K
R153 1K
R154 1K
R155 1K
R156 1K
R157 1K
R158 1K
TTL/ANALOG
H.POLARITY
V.POLARITY
H.EXISTENCE
V.EXISTENCE
MDA
D/A DI
D/A CK
D/A LD
E² ROM CS
E² ROM CK
E² ROM DI
E² ROM DO
E² ROM RD
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
NMI
INT1
MODE1
RST
MODE0
X2
X1
Vss
Vcc
VDD
PD7
PD6
PD5
PD4
PD3
PD2
PD1
PD0
PF7
PF6
PF5
PF4
PF3
PF2
PF1
PF0
ALE
WR
RD
AVss
VAREF
AN7
AN6
AN5
AN4
AN3
AN2
AN1
AN0
AVss
F.A
D.L
DOWN
UP
CS2
CS1
CS0
fh217K
R182 10 1/4W
R161 10K
R163 10K
C162 10P
X151 X'tal 12MHz
C163 10P
IC151
μPD78C11G-252-36
TP15
C172 0.1μ
R182 2.7K
IC154 LM324 OR μPC324 OR BA10324
R167 4.7K
C165 1μ
C166 22μ 16V
R169 4.7K
R183 1K 1/4W
C167 22μ 16V
R166 10K
R164 10K
R168 10K
D151 1SS132
D153 1SS132
Q151 2SC945 P.Q.R
Q152 2SC945 P.Q.R
C181 0.01μ
IC155 LM358 μPC35 BA1035

MODEL JC-1404HMN
SCHEMATIC DIAGRAM


TO CONT PWB "C"
C9 C8 C7 C6 C5 C4 C3 C2 C1
12V 5V PD7 PD6 PD4 PD3 PC2 PD1 PD0 5V
※1
※2
※3
※4
※5
※6
※7
※8
※9
※10
※11
※12
※13
※14
※15
※16
※17
※18
TO SUB PWB "M"
M1 M2 M3 H.S M4 V.S M5 T/A M6 H.P M7 V.P M8 H.E M9 V.E M10 MDA M11
K1 K2 K3 K4 GND
TO DEF PWB "K"
TP651
PC502 TLP634
R665 4.7K
C661 100V 0.047
L151 5.6μH
L152 15μH
C159 220μ 10V H.T
C160 0.1μ
R196 10K
R195 10K
C151 100P
C152 1000P
C153 0.01μ
C154 0.01μ
C155 0.01μ
C156 0.01μ
C157 0.01μ
C158 0.01μ
R151 470
R152 1K
R153 1K
R154 1K
R155 1K
R156 1K
R157 1K
R158 1K
TTL/ANALOG
H.POLARITY
V.POLARITY
H.EXISTENCE
V.EXISTENCE
MDA
D / A DI
D / A CK
D / A LD
E² ROM CS
E² ROM CK
E² ROM DI
E² ROM DO
E² ROM RD
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
NMI INT1 MODE1 RST MODE0 X2 X1 Vss
Vcc VDD PD7 PD6 PD5 PD4 PD3 PD2 PD1 PD0
PF7 PF6 PF5 PF4 PF3 PF2 PF1 PF0
ALE WR RD AVss VAREF AN7 AN6 AN5 AN4 AN3 AN2 AN1 AN0 AVss
F.A D.L DOWN UP CS2 CS1 CS0 fh217K
R161 10K
R163 10K
C162 10P
X151 X'tal 12MHz
C163 10P
IC151
μPD78C11G-252-36
TP151 TP152
C161 22μ 25V
R1A7 10K
C172 0.1μ
IC152
μPD6336
Vcc DI CK LD OP Dout D8 Vss VDD D1 D2 D3 D4 D5 D6 D7
IC153
M16911 OR
ER5911
CS CK DI DO +5V RD OR GND
C164 0.1μ
R1B2 2.7K
R1B1 2.7K
R182 10 1/4W
R1A0 R1A1 R1A2 R1A3 R1A4 R1A5 R1A6
R1A0–R1A6 1K X 7
C173 0.1μ C174 0.1μ C175 C176 C177 C178 C179
C175–C179 0.01μ X 5
IC154 V-F/V
IC154 V.POSI
IC154 V.SIZE
IC154 H.F/V
IC155 H.POSI
IC155 H.SIZE
18V
R170 10K
R183 10K
R171 4.7K
Q153 2SC945 P.Q.R
R184 10K
fH≤27KHz 0V
fH>27KHz 0.7V
Q161 DTC114ES OR AA1A4M
R159 4.7K
D155 1SS132
D152 1SS132
C183 10μ 16V
R172 1K R173 1K R174 1K R175 1K
IC156
PF3 fH≥33KHz
PF2 fH≥27KHz
PF1 fH≥20KHz
PF0 fH≥17KHz
R598 3.3K 1/4W
H.SYNC
V.SYNC
R177 10K 1%
R176 15K 1%
R178 33K 1%
R179 12K 1%
R180 3.3K 1%
R181 22K 1%
IC157
Q154 AA1L4M
R522 4.7K
R534 8.2K 1%
IC507
R518 2.2K
R519 4.7K
VR502 H.HOLD2 10K
R535 12K 1%
R185 390K 1%
D502 1SS132
R501 5.6K 1%
R505 68K 1%
R506 3.9K 1%
R530 1K 1%
R503 22K 1%
IC502
Q501 2SA733 P.Q.R
C502 2200P 2% 100V
R502 1.5K
C501 390P
R507 1K
R524 2.2K
Q502 2SC945 P.Q.R
R508 27K 1%
R509 10K 1%
R511 22K 1%
R512 10K 1%
D503 1SS132
R513 10K
R514 100
R515 10K
IC501
R510 1M
TO:C420 (IC512⑦)
TP2006
R401 22K
R402 4.7K
R403 2.2K
R517 2.2K
C403 100P
IC501
5V
R167 4.7K
C165 1μ
C166 22μ 16V
R169 4.7K
R183 1K 1/4W
C167 22μ 16V
R166 10K
R164 10K
R168 10K
D151 1SS132
D153 1SS132
Q151 2SC945 P.Q.R
Q152 2SC945 P.Q.R
IC154 LM324 OR μPC324 OR BA10324
IC155 LM358 OR μPC358 OR BA10358
C181 0.01μ
C599 0.1μ
C171 0.01μ
IC156 SN74LS07N OR HD74LS07P
IC502 LM358 OR BA10358 OR μPC358
C567 0.01μ
IC501 LM339 OR BA10339
C180 0.01μ
IC157 LM358 OR μPC358 OR BA10358
C569 0.01μ
IC507 LM358 OR μPC358 OR BA10358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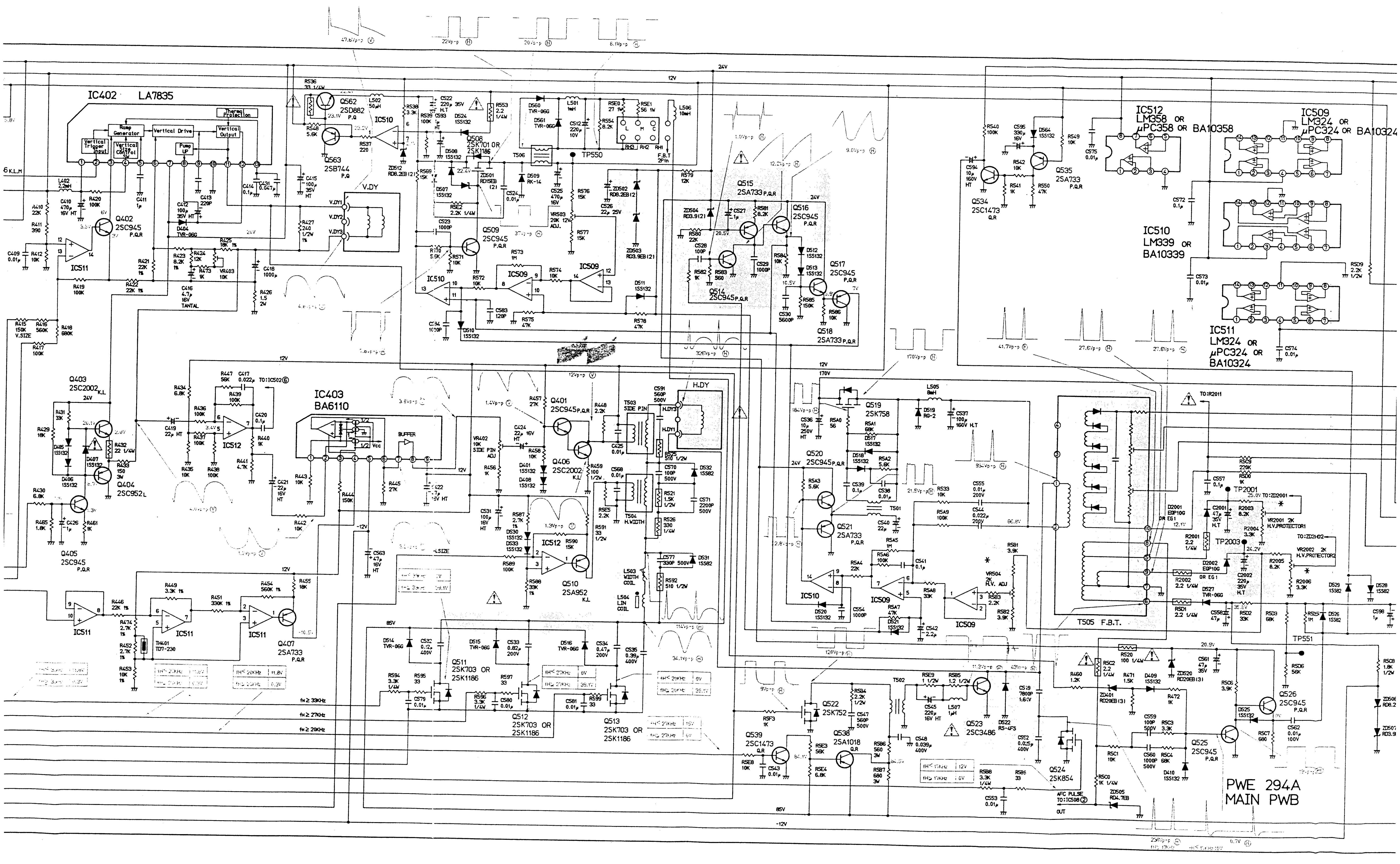
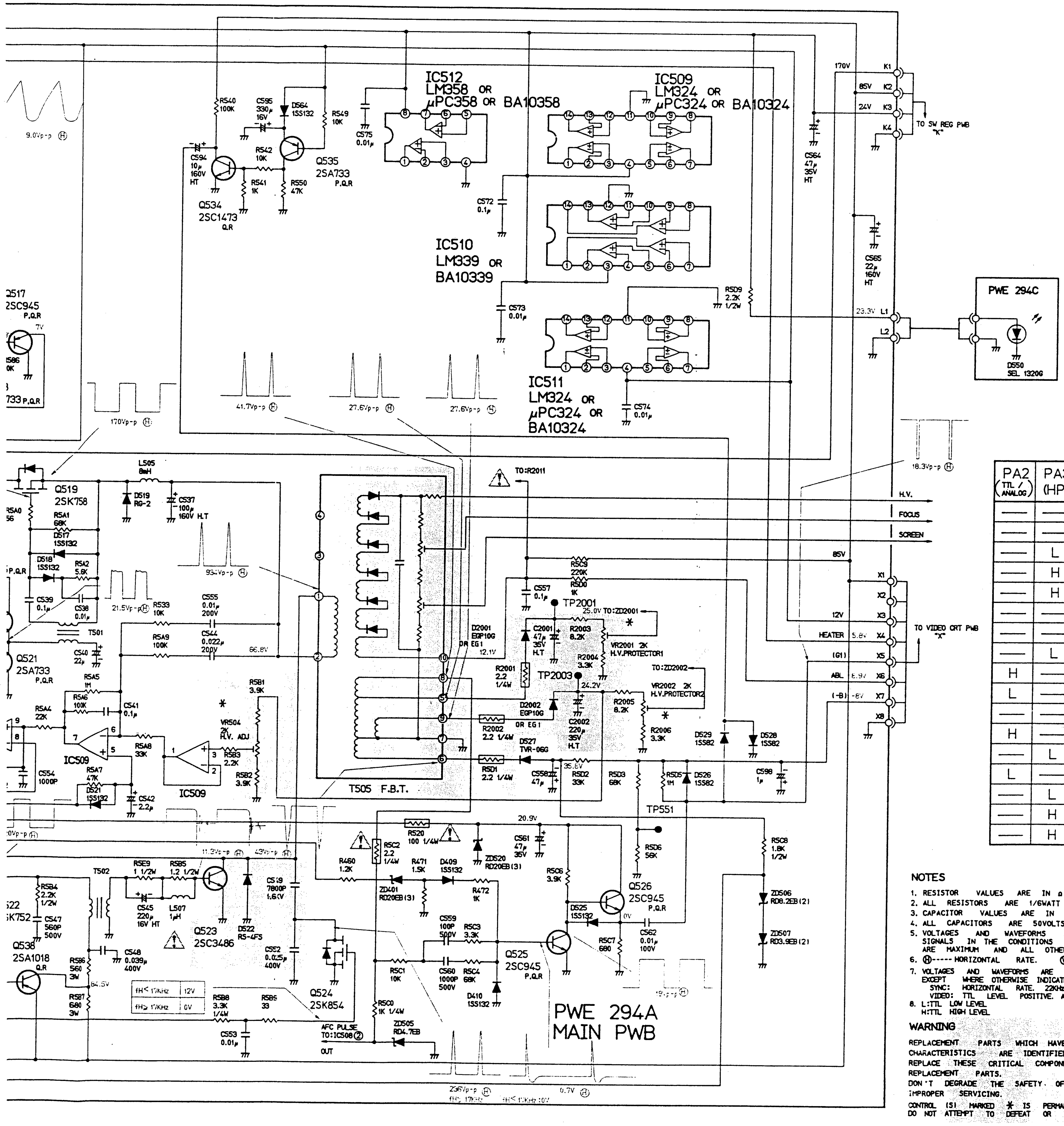
※13
※14
※15
※16
※17
※18
24V
12V
5V
18V
85V
-12V
Q530 2SC2002 K.L
Q531 2SC945 P.Q.R
TP502
VR505 2K 18V ADJ
ZD511 RD6.2EB1 21-TL
Q536 2SA733 P.Q.R
L508 5.6μH
IC508 μPD74HC123
CLR
AFC PULSE IN TO:ZD505
Q504 2SC945 P.Q.R
Q537 2SC945 P.Q.R
Q532 2SC945 P.Q.R
Q533 2SC945 P.Q.R
Q527 2SD986 K.L.M
D506 TVR-06G
R568 2.2 1/4W
R567 8.2 3W
IC402 LA7835
Thermal Protection
Ramp Generator
Vertical Drive
Vertical Output
Vertical Trigger Input
Vertical Size Control SW
Pump UP
L402 2.2mH
Q402 2SC945 P.Q.R
IC511
D404 TVR-06G
VR403 10K
R415 150K V.SIZE
VR501 H.HOLD 10K
IC507
Q505 2SA733 P.Q.R
TO:C557
TO:VR2002 PROTECTOR2
Q2001 2SA733 P.Q.R
ZD2002 RD8.2JSB
D2005 1SS132
D2006 1SS132
Q2002 2SC945 P.Q.R
TP2005
D2003 1SS132
D2004 1SS132
ZD2001 RD8.2JSB
TO:VR2001 PROTECTOR1
IC401 HA11423
H.PRE DRIVE
VCO
AFC
SYNC. SEP.
V. BLANK
V. DRIVE
V.OSC
V. SYNC
TP401
TP501
IC501
L401 2.2mH
Q506 2SC945 P.Q.R
Q507 2SA733 P.Q.R
Q403 2SC2002 K.L
Q404 2SC952L
Q405 2SC945 P.Q.R
D405 1SS132
D406 1SS132
D407 1SS132
IC512
IC403 BA6110
BUFFER
1/2 Vcc
TO:IC502⑥
Q407 2SA733 P.Q.R
TH401 TD7-230
Q503 2SC945 P.Q.R
D2011 1SS132
D2010 1SS132
CANCELLING WIRE
C.W.1
C.W.2
C.W.3
C.W.4
fH ≥ 33KHz
fH ≥ 27KHz
fH ≥ 20KHz
Q562 2SD882 P.Q
Q563 2SB744 P.Q
L502 50μH
IC510
ZD512 RD8.2EB(2)
V.DY
V.DY1
V.DY2
V.DY3
D514 TVR-06
Q511 2SK703 2SK1186
H.SIZE


IC402 LA7835
Vertical Trigger Input
Ramp Generator
Vertical Size Control SW
Vertical Drive
Pump UP
Vertical Output
Thermal Protection
V.DY
Q402 2SC945 P.Q.R
IC511
Q403 2SC2002 K.L
Q404 2SC952 L
Q405 2SC945 P.Q.R
IC403 BA6110
BUFFER
IC512
Q401 2SC945 P.Q.R
Q406 2SC2002 K.L
Q407 2SA733 P.Q.R
Q510 2SA952 K.L
Q562 2SD882 P.Q
Q563 2SB744 P.Q
IC510
Q508 2SK701 OR 2SK1186
Q509 2SC945 P.Q.R
IC509
TP550
T506
F.B.T 2Pin
Q515 2SA733 P.Q.R
Q516 2SC945 P.Q.R
Q514 2SC945 P.Q.R
Q517 2SC945 P.Q.R
Q518 2SA733 P.Q.R
H.DY
T503 SIDE PIN
T504 H.WIDTH
L503 WIDTH COIL
L504 LIN COIL
Q511 2SK703 OR 2SK1186
Q512 2SK703 OR 2SK1186
Q513 2SK703 OR 2SK1186
Q519 2SK758
Q520 2SC945 P.Q.R
Q521 2SA733 P.Q.R
T501
Q522 2SK752
Q523 2SC3486
Q524 2SK854
Q538 2SA1018
Q539 2SC1473 Q.R
T502
AFC PULSE TO:IC508 ②
T505 F.B.T.
TP2001
TP2003
TP551
VR2001 2K H.V.PROTECTOR1
VR2002 2K H.V.PROTECTOR2
Q525 2SC945 P.Q.R
Q526 2SC945 P.Q.R
Q534 2SC1473 Q.R
Q535 2SA733 P.Q.R
IC512 LM358 OR μPC358 OR BA10358
IC509 LM324 OR μPC324 OR BA10324
IC510 LM339 OR BA10339
IC511 LM324 OR μPC324 OR BA10324
24V
12V
-12V
85V
170V
fH ≥ 33KHz
fH ≥ 27KHz
fH ≥ 20KHz

PWE 294A
MAIN PWB

RUN NO. 2


IC512
LM358 OR
μPC358 OR BA10358
IC509
LM324 OR
μPC324 OR BA10324
IC510
LM339 OR
BA10339
IC511
LM324 OR
μPC324 OR
BA10324
Q534
2SC1473
Q535
2SA733
Q517
2SC945
Q519
2SK758
Q521
2SA733
Q523
2SC3486
Q524
2SK854
Q525
2SC945
Q526
2SC945
Q538
2SA1018
T505 F.B.T.
TP2001
TP2003
TP551
VR2001 2K H.V.PROTECTOR1
VR2002 2K H.V.PROTECTOR2
VR504 2K H.V. ADJ
H.V.
FOCUS
SCREEN
170V
85V
24V
TO SW REG PWB "K"
TO VIDEO CRT PWB "X"
PWE 294C
D550 SEL 1320G
HEATER
ABL
AFC PULSE TO:IC508②
PWE 294A
MAIN PWB

PD0 (CS0)	PD1 (CS1)	PD2 (CS2)	
L	H	H	H.POSI
H	L	L	H.SIZE
H	L	H	V.POSI
H	H	L	V.SIZE
H	H	H	DISABLE

PD3	PD4	
H	L	UP
L	H	DOWN
H	H	DISABLE

PD6	PD7	
L	L	USER CONTROL MODE
L	H	FACTORY ADJ. MODE
H	L	DATA LOAD
H	H	FACTORY DATA WRITING

PA2 (TTL / ANALOG)	PA3 (HP)	PA4 (VF)	PA5 (HE)	PA6 (VE)	PA7 (MODE)	FH	FV	
—	—	—	—	—	L	(i)	(i)	CGA
—	—	—	—	—	L	(ii)	(i)	EGA
—	L	H	—	—	L	(v)	(i)	VGA 350
—	H	L	—	—	L	(v)	(i)	VGA 400
—	H	H	—	—	L	(v)	(i)	VGA 480
—	—	—	—	—	L	(vi)	(ii)	8514A
—	—	—	L	L	L	(vi)	(i)	MAC II
—	L	L	H	H	L	(vi)	(i)	800＊600(1)P.P.
H	—	—	—	—	H	—	(i)	MDA
L	—	—	—	—	L	(iv)	(i)	PGC
—	—	—	—	—	L	(iii)	(i)	EGA (2)
H	—	—	—	—	L	(iv)	(i)	EGA (3)
—	L	L	—	—	L	(v)	(i)	ANALOG(1) P.P.
L	—	—	—	—	H	—	(i)	USER
—	L	H	H	H	L	(vi)	(i)	800＊600(2)P.N.
—	H	L	H	H	L	(vi)	(i)	800＊600(3)N.P.
—	H	H	H	H	L	(vi)	(i)	800＊600(4)N.N.

NOTES

1. RESISTOR VALUES ARE IN Ω (OHM) K = 1,000Ω M = 1,000,000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACTER SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS CONTROLS ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. AND VIDEO. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE. 22KHz SEPARATE SYNC. TTL LEVEL POSITIVE
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL
9. (i) : 15.5kHz ≦ F_H < 21kHz
   (ii) : 21kHz ≦ F_H < 23kHz
   (iii) : 23kHz ≦ F_H < 27.5kHz
   (iv) : 27.5kHz ≦ F_H < 31kHz
   (v) : 31kHz ≦ F_H < 33kHz
   (vi) : 33kHz ≦ F_H ≦ 38kHz
10. (i) : F_V < 75Hz
   (ii) : F_V ≧ 75Hz

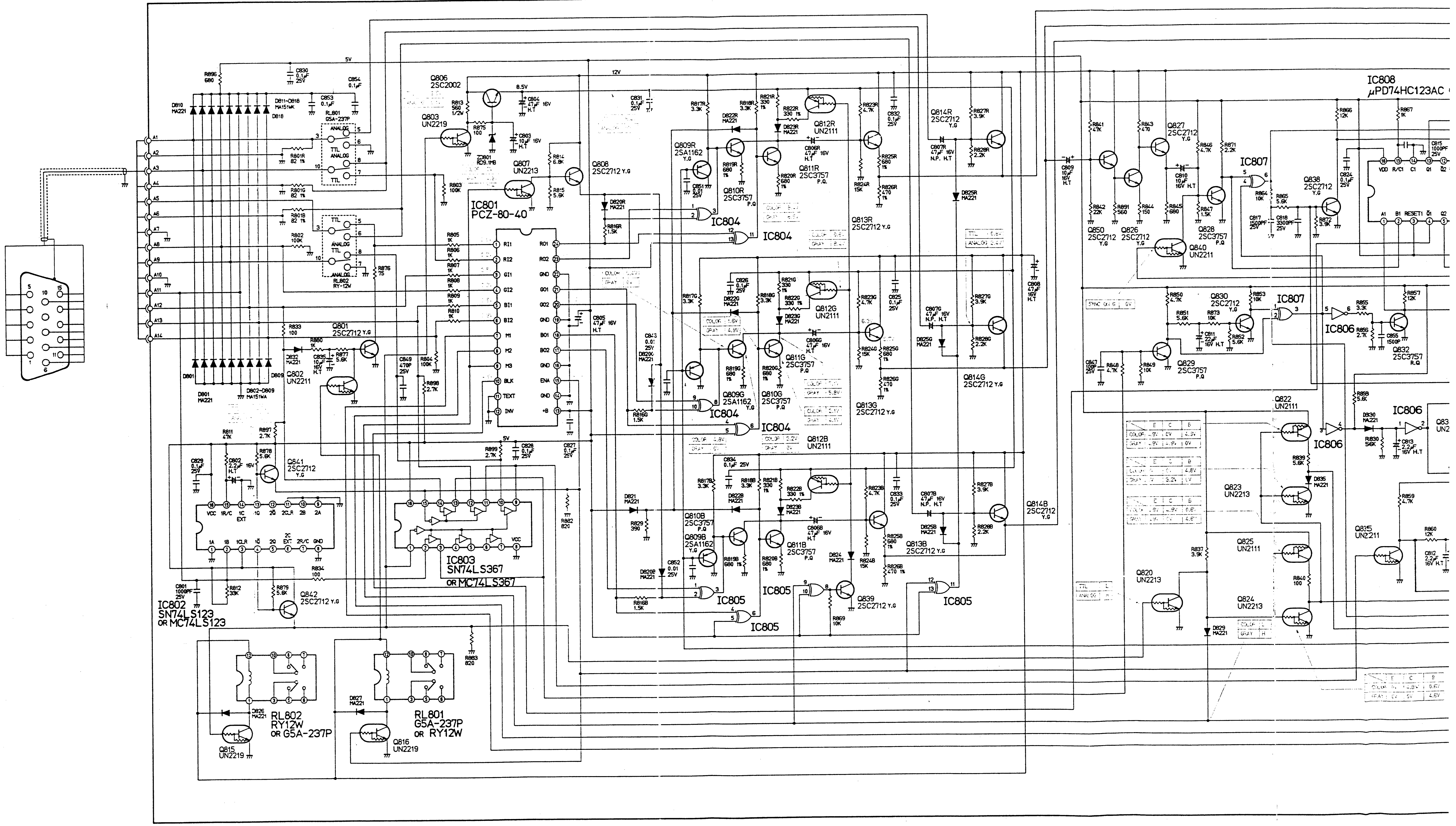
WARNING

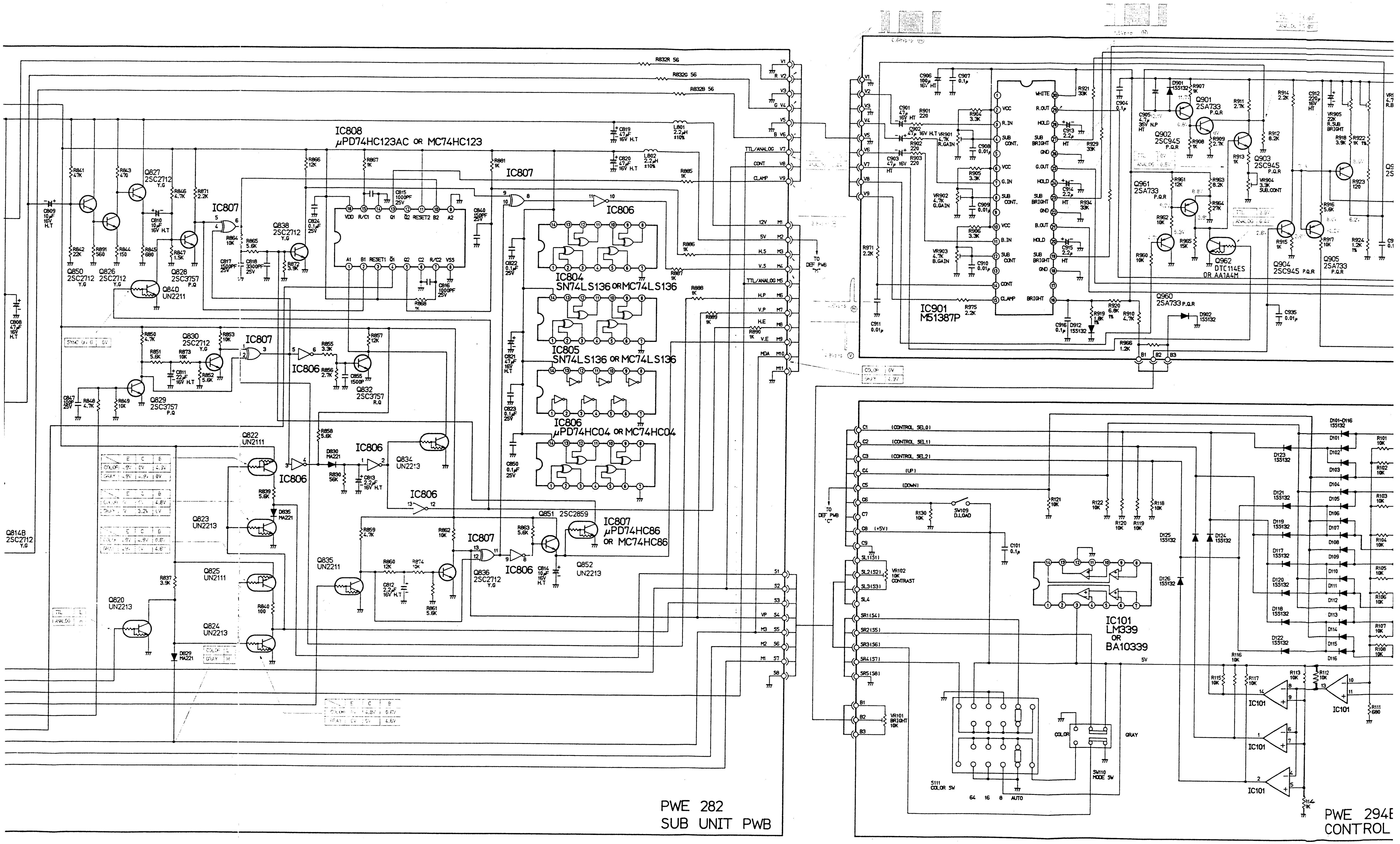
REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.

DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

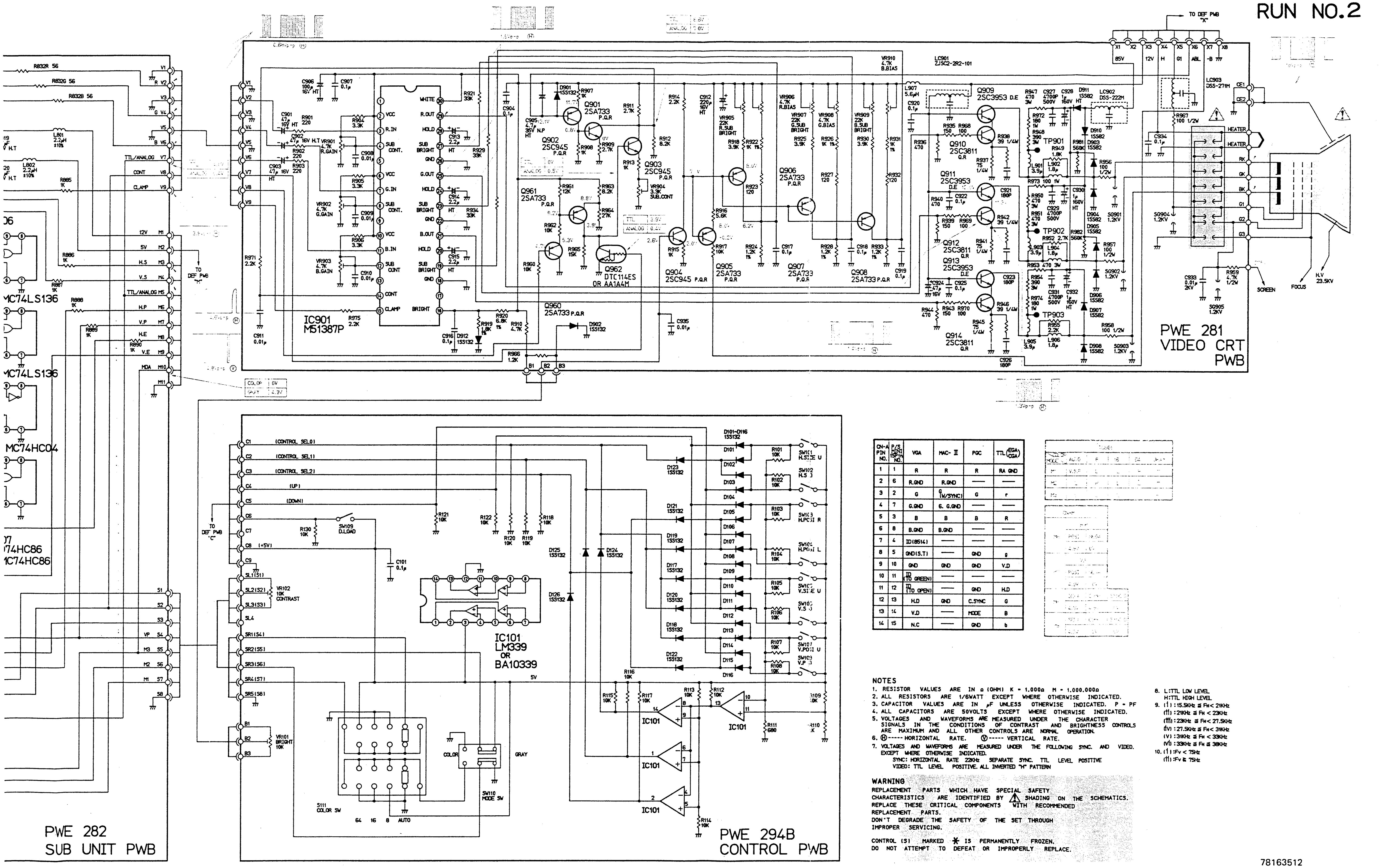
CONTROL (S) MARKED ＊ IS PERMANENTLY FROZEN.
DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

MODEL JC-1404HMN
SCHEMATIC DIAGRAM


5V
12V
R896 680
C830 0.1μF 25V
C854 0.1μF
C853 0.1μF
D810 MA221
D811~D818 MA151WK
D818
RL801 G5A-237P
RL802 RY-12W
ANALOG
TTL
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
R801R 82 1%
R801G 82 1%
R801B 82 1%
R802 100K
R876 75
R833 100
D801 MA221
D802~D809 MA151WA
Q806 2SC2002
R813 560 1/2W
R875 100
ZD801 RD9.1HB
Q803 UN2219
C804 47μF 16V H.T
C803 10μF 16V H.T
Q807 UN2213
R814 6.8K
R815 5.6K
Q808 2SC2712 Y.G
R803 100K
IC801 PCZ-80-40
RI1
RI2
GI1
GI2
BI1
BI2
M1
M2
M3
BLK
TEXT
INV
RO1
RO2
GND
GO1
GO2
BO1
BO2
ENA
+B
R805 1K
R806 1K
R807 1K
R808 1K
R809 1K
R810 1K
C805 47μF 16V H.T
Q801 2SC2712 Y.G
R880 1K
D832 MA221
C835 10μF 16V H.T
R877 5.6K
Q802 UN2211
C849 470P 25V
R804 100K
R898 2.7K
R897 2.7K
R811 47K
C829 0.1μF 25V
C802 2.2μF 16V H.T
R878 5.6K
Q841 2SC2712 Y.G
R899 2.7K
C828 0.1μF 25V
C827 0.1μF 25V
IC802 SN74LS123 OR MC74LS123
C801 1000PF 25V
R812 33K
R834 100
R879 5.6K
Q842 2SC2712 Y.G
IC803 SN74LS367 OR MC74LS367
R822 820
R863 820
RL802 RY12W OR G5A-237P
RL801 G5A-237P OR RY12W
D826 MA221
D827 MA221
Q815 UN2219
Q816 UN2219
C831 0.1μF 25V
D820R MA221
R816R 1.5K
IC804
R817R 3.3K
R818R 3.3K
R821R 330 1%
R822R 330 1%
D822R MA221
D823R MA221
Q812R UN2111
Q809R 2SA1162 Y.G
C851 0.01 25V
R819R 680 1%
Q810R 2SC3757 P.Q
C806R 47μF 16V H.T
R820R 680 1%
Q811R 2SC3757 P.Q
R823R 4.7K
C832 0.1μF 25V
R825R 680 1%
R824R 15K
R826R 470 1%
Q813R 2SC2712 Y.G
Q814R 2SC2712 Y.G
C807R 47μF 16V N.P. H.T
R827R 3.9K
R828R 2.2K
D825R MA221
C808 47μF 16V H.T
R817G 3.3K
C826 0.1μF 25V
D822G MA221
R818G 3.3K
R821G 330
R822G 330 1%
D823G MA221
Q812G UN2111
C825 0.1μF 25V
R823G 4.7K
C807G 47μF 16V N.P. H.T
R827G 3.9K
D825G MA221
R828G 2.2K
Q814G 2SC2712 Y.G
C843 0.01 25V
D820G MA221
R816G 1.5K
Q809G 2SA1162 Y.G
R819G 680 1%
R820G 680 1%
Q810G 2SC3757 P.Q
Q811G 2SC3757 P.Q
C806G 47μF 16V H.T
R824G 15K
R825G 680 1%
R826G 470 1%
Q813G 2SC2712 Y.G
Q812B UN2111
C834 0.1μF 25V
R817B 3.3K
R818B 3.3K
R821B 330 1%
R822B 330 1%
D822B MA221
D823B MA221
D821 MA221
R829 390
Q810B 2SC3757 P.Q
Q809B 2SA1162 Y.G
C852 0.01 25V
D820B MA221
R816B 1.5K
R819B 680 1%
R820B 680 1%
Q811B 2SC3757 P.Q
C806B 47μF 16V H.T
D824 MA221
R824B 15K
R823B 4.7K
C833 0.1μF 25V
R825B 680 1%
R826B 470 1%
Q813B 2SC2712 Y.G
C807B 47μF 16V N.P. H.T
D825B MA221
R827B 3.9K
R828B 2.2K
Q814B 2SC2712 Y.G
IC805
Q839 2SC2712 Y.G
R869 10K
COLOR
GRAY
IC808 μPD74HC123AC
C809 10μF 16V H.T
R841 47K
R843 470
Q827 2SC2712 Y.G
R846 4.7K
R871 2.2K
C810 10μF 16V H.T
R842 22K
R891 560
R844 150
R845 680
R847 1.5K
Q850 2SC2712 Y.G
Q826 2SC2712 Y.G
Q828 2SC3757 P.Q
Q840 UN2211
IC807
R864 10K
R865 5.6K
C817 1500PF 25V
C818 3300PF 25V
Q838 2SC2712 Y.G
R872 3.9K
R866 12K
R867 1K
C824 0.1μF 25V
C815 1000PF 25V
VDD R/C1 C1 Q1
A1 B1 RESET1 Q1
SYNC ON G
R850 4.7K
R851 5.6K
R873 10K
Q830 2SC2712 Y.G
R853 10K
C811 22μF 16V H.T
R852 5.6K
C847 100P 25V
R848 4.7K
R849 10K
Q829 2SC3757 P.Q
IC806
R855 3.3K
R856 2.7K
C855 1500P
R857 12K
Q832 2SC3757 R.Q
R858 5.6K
Q822 UN2111
D830 MA221
R830 56K
C813 2.2μF 16V H.T
R839 5.6K
D835 MA221
Q823 UN2213
R859 4.7K
Q835 UN2211
R860 12K
C812 2.2μF 16V H.T
R837 3.9K
Q825 UN2111
R840 100
Q820 UN2213
Q824 UN2213
D829 MA221
TTL
ANALOG


IC808
μPD74HC123AC OR MC74HC123
IC807
IC806
IC804
SN74LS136 OR MC74LS136
IC805
SN74LS136 OR MC74LS136
IC806
μPD74HC04 OR MC74HC04
IC807
μPD74HC86
OR MC74HC86
Q827 2SC2712
Q838 2SC2712
Q850 2SC2712
Q826 2SC2712
Q828 2SC3757
Q840 UN2211
Q830 2SC2712
Q829 2SC3757
Q832 2SC3757
Q822 UN2111
Q823 UN2213
Q825 UN2111
Q824 UN2213
Q820 UN2213
Q834 UN2213
Q835 UN2211
Q836 2SC2712
Q851 2SC2859
Q852 UN2213
Q814B 2SC2712
TO DEF PWB
PWE 282
SUB UNIT PWB
IC901
M51387P
Q901 2SA733
Q902 2SC945
Q903 2SC945
Q904 2SC945
Q905 2SA733
Q960 2SA733
Q961 2SA733
Q962 DTC114ES OR AA1A4M
VR901 4.7K R.GAIN
VR902 4.7K G.GAIN
VR903 4.7K B.GAIN
VR904 3.3K SUB.CONT
VR905 22K R.SUB BRIGHT
IC101
LM339
OR
BA10339
VR101 BRIGHT 10K
VR102 10K CONTRAST
SW109 D.LOAD
S111 COLOR SW
SW110 MODE SW
COLOR
GRAY
64 16 8 AUTO
(CONTROL SEL0)
(CONTROL SEL1)
(CONTROL SEL2)
(UP)
(DOWN)
TO DEF PWB "C"
D101-D116 1SS132
PWE 294
CONTROL

RUN NO.2


TO DEF PWB "X"
X1 X2 X3 X4 X5 X6 X7 X8
85V 12V H G1 ABL -B
IC901
M51387P
Q901 2SA733
Q902 2SC945
Q903 2SC945
Q904 2SC945
Q905 2SA733
Q906 2SA733
Q907 2SA733
Q908 2SA733
Q909 2SC3953
Q910 2SC3811
Q911 2SC3953
Q912 2SC3811
Q913 2SC3953
Q914 2SC3811
Q960 2SA733
Q961 2SA733
Q962 DTC114ES OR AA1A4M
LC901 ZJSC2-2R2-101
LC902 DSS-222M
LC903 DSS-271M
VR904 3.3K SUB.CONT
VR910 4.7K B.BIAS
TP901
TP902
TP903
HEATER
RK
GK
BK
G1
G2
G3
SCREEN
FOCUS
H.V 23.5KV
PWE 281
VIDEO CRT
PWB
MC74LS136
MC74HC04
74HC86
MC74HC86
TO DEF PWB
PWE 282
SUB UNIT PWB
TO DEF PWB "C"
SW109 D.LOAD
VR102 10K CONTRAST
VR101 BRIGHT 10K
IC101
LM339
OR
BA10339
S111 COLOR SW
SW110 MODE SW
COLOR
GRAY
64 16 8 AUTO
(CONTROL SEL0)
(CONTROL SEL1)
(CONTROL SEL2)
(UP)
(DOWN)
D101-D116 1SS132
SW101 H.SIZE U
SW102 H.S D
SW103 H.POSI R
SW104 H.POSI L
SW105 V.SIZE U
SW106 V.S D
SW107 V.POSI U
SW108 V.P D
PWE 294B
CONTROL PWB

CN-A PIN NO.	P/S MINI 15Pin NO.	VGA	MAC- II	PGC	TTL (EGA CGA)
1	1	R	R	R	RA GND
2	6	R.GND	R.GND	——	——
3	2	G	G (W/SYNC)	G	r
4	7	G.GND	6. G.GND	——	——
5	3	B	B	B	R
6	8	B.GND	B.GND	——	——
7	4	ID(8514)	——	——	——
8	5	GND(S.T)	——	GND	g
9	10	GND	GND	GND	V.D
10	11	ID (TO GREEN)	——	——	——
11	12	ID (TO OPEN)	——	GND	H.D
12	13	H.D	GND	C.SYNC	G
13	14	V.D	——	MODE	B
14	15	N.C	——	GND	b

NOTES

1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1.000.000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VALUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE CHARACTER SIGNALS IN THE CONDITIONS OF CONTRAST AND BRIGHTNESS CONTROLS ARE MAXIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. Ⓗ----- HORIZONTAL RATE. Ⓥ----- VERTICAL RATE.
7. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE FOLLOWING SYNC. AND VIDEO. EXCEPT WHERE OTHERWISE INDICATED.
   SYNC: HORIZONTAL RATE 22KHz SEPARATE SYNC. TTL LEVEL POSITIVE
   VIDEO: TTL LEVEL POSITIVE. ALL INVERTED "H" PATTERN
8. L:TTL LOW LEVEL
   H:TTL HIGH LEVEL
9. (I) : 15.5KHz ≦ FH < 21KHz
   (II) : 21KHz ≦ FH < 23KHz
   (III) : 23KHz ≦ FH < 27.5KHz
   (IV) : 27.5KHz ≦ FH < 31KHz
   (V) : 31KHz ≦ FH < 33KHz
   (VI) : 33KHz ≦ FH ≦ 38KHz
10. (I) : Fv < 75Hz
    (II) : Fv ≧ 75Hz

WARNING

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.
DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

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